

VILLAGE OF DOWNERS GROVE
REPORT FOR THE VILLAGE COUNCIL MEETING
APRIL 12, 2011

SUBJECT:	TYPE:	SUBMITTED BY:
Server Replacement with Virtualization Software	✓ Resolution Ordinance Motion Discussion Only	Liangfu Wu Director of Information Services

SYNOPSIS

A motion is requested approving a contract with Sentinel Technologies, Inc. for servers and software for an amount not to exceed \$108,107.00.

STRATEGIC PLAN ALIGNMENT

The goals for 2011-2018 include *Exceptional Municipal Organization*.

FISCAL IMPACT

The FY2011 budget includes \$110,000 in the Equipment Replacement Fund for this purchase.

UPDATE & RECOMMENDATION

This item was discussed at the April 5, 2011 Village Council meeting. Staff recommends approval on the April 12, 2011 Consent Agenda.

BACKGROUND

The Village's information systems are supported by 28 servers, each of which hosts a specialized application. Maintaining and replacing such a large server group is very costly. A review of a server replacement schedule conducted by staff shows that the replacement of 15 servers in FY2011 and FY 2012 alone would cost the Village more than \$120,000. Staff recommends purchasing a virtualization system, a software and server solution that will consolidate 19 of the servers and their respective applications into three servers. This purchase will replace 19 of the current servers and allow the Village to operate more efficiently with fewer replacement and maintenance costs over time. The total number of servers will be reduced from 28 to 12. In addition, a virtualized server system will allow the Village to put a full disaster recovery solution in place in the future.

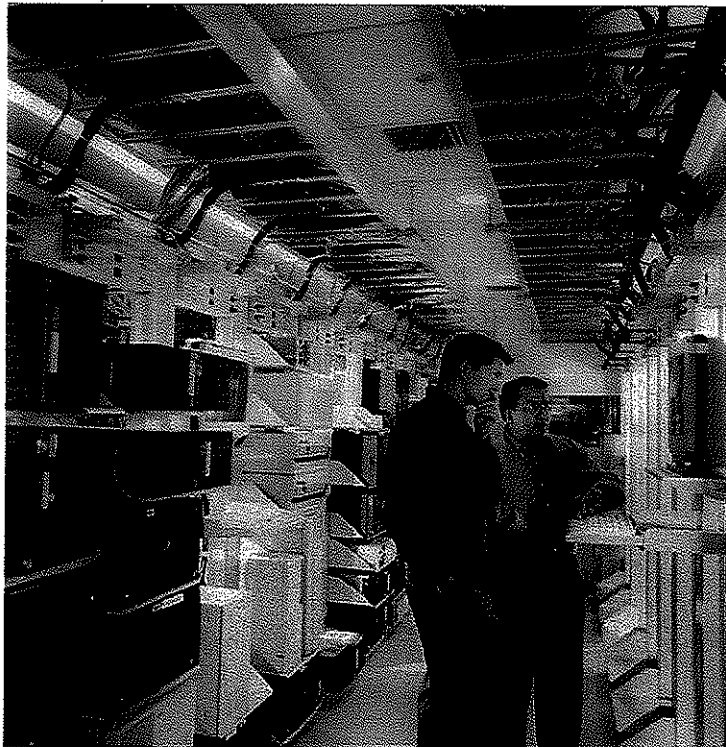
In December 2010, the Village issued an RFP and received four proposals. Based on costs and technical merits, the final negotiation was conducted between Peters & Associates and Sentinel Technology. Proposals from both Sentinel and Peters meet the project requirements; however, Sentinel's final solution has a lower cost. Therefore, staff recommends that the project be awarded to Sentinel Technology for a project total amount of \$108,107.00.

The project team submitted this project to the Technology Commission for their review. At a meeting held on March 7, 2011, members of the commission and staff discussed the technical and financial considerations of the project. The Technology Commission unanimously voted to support staff's recommendation. The cost proposals from Peters & Associates and Sentinel are below.

COMPONENTS	COMPANIES	
Virtualization	Peters	Sentinel
Project Total:	\$131,023.00	\$108,107.00

ATTACHMENTS

Final Proposal: Sentinel Technologies, Inc.



Centralized Storage & Virtualization Solution

*A PROPOSAL TO:
Village of Downers Grove*



January 21, 2011



s e n t i n e l®



s e n t i n e l ®

Sentinel Technologies

2550 Warrenville Road
Downers Grove
Illinois 60515
tel 630 769 4300
fax 630 769 1399
sentinel.com

January 19, 2011

Terri Tarka
Purchasing Assistant
Village of Downers Grove
801 Burlington Ave.
Downers Grove, IL 60515

Dear Terri:

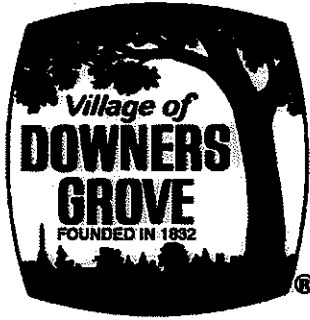
Sentinel Technologies, Inc. is pleased to submit this proposal in response to the Village of Downers Grove Network Virtualization Request For Proposal. We acknowledge our understanding of the technical aspects of the project based on the RFP and addendums. Our response provides the Village with a network virtualization solution that successfully addresses the immediate goals and objectives outlined in the RFP proposal document.

Since 1982, Sentinel Technologies, Inc. has been recognized as a premier technology services and solution provider. Sentinel's experienced staff, commitment to on-going training, concentration of resources, and assurance of customer satisfaction are the cornerstones of Sentinel's offerings.

Thank you for the opportunity, we look forward to working with the Village on this project. If you have any question, concerns, or feedback, please do not hesitate to contact me directly at (630) 769-4271.

Sincerely,

Timothy Rico
Account Executive
Sentinel Technologies, Inc.
2550 Warrenville Road
Downers Grove, IL 60515
Direct: 630.769.4271
Fax: 630.769.1399
trico@sentinel.com
www.sentinel.com



REQUEST FOR PROPOSAL (Professional Services)

Name of Proposing Company: Sentinel Technologies, Inc.
Project Name: Network Virtualization
Proposal No.: RFP-001122010-0-2010/TT
Proposal Due: January 21, 2011 5:00 PM
Pre-Proposal Conference: **Informational Sessions:**
First session:
Date & Time: January 11, 2011, 9 am -11 am
Place: Village Hall, 801 Burlington Avenue, Downers Grove, IL 60515
Second session:
Date & Time: January 12, 2011, 9am-11am
Place: Village Hall, 801 Burlington Ave. Downers Grove, IL 60515

Required of Awarded Contractor:

Certificate of Insurance: Yes
Legal Advertisement Published: December 15, 2010
Date Issued: December 15, 2010
This document consists of 24 **pages.**

Return **original** and **two duplicate copies** of proposal in a **sealed envelope** marked with the Proposal Number as noted above to:

THERESA H. TARKA
PURCHASING ASSISTANT
VILLAGE OF DOWNERS GROVE
801 BURLINGTON AVENUE
DOWNERS GROVE, IL 60515
PHONE: 630/434-5530
FAX: 630/434-5571
www.downers.us

Village of Downers Grove

The VILLAGE OF DOWNERS GROVE will receive proposals Monday thru Friday, 8:00 A.M. to 5:00 P.M. at the Village Hall, 801 Burlington Avenue, Downers Grove, IL 60510.

SPECIFICATIONS MUST BE MET AT THE TIME THE PROPOSAL IS DUE.

The Village Council reserves the right to accept or reject any and all proposals, to waive technicalities and to accept or reject any item of any proposal.

The documents constituting component parts of this contract are the following:

- I. REQUEST FOR PROPOSALS
- II. TERMS & CONDITIONS
- III. DETAILED SPECIFICATIONS
- IV. PROPOSAL/CONTRACT FORM

DO NOT DETACH ANY PORTION OF THIS DOCUMENT. INVALIDATION COULD RESULT. Proposers MUST submit an original, and 2 additional paper copies of the total proposal. Upon formal award of the proposal this RFP document shall become the contract, the successful Proposer will receive a copy of the executed contract.

I. REQUEST FOR PROPOSALS

1. GENERAL

- 1.1 Notice is hereby given that Village of Downers Grove will receive sealed proposals up to **January 21, 2011 5:00 PM**
- 1.2 Proposals must be received at the Village of Downers Grove by the time and date specified. Proposals received after the specified time and date will not be accepted and will be returned unopened to the Proposer.
- 1.3 Proposal forms shall be sent to the Village of Downers Grove, ATTN: Theresa Tarka, in a sealed envelope marked "SEALED PROPOSAL". The envelope shall be marked with the name of the project, date, and time set for receipt of proposals.
- 1.4 All proposals must be submitted on the forms supplied by the Village and signed by a proper official of the company submitting proposal. Telephone, email and fax proposals will not be accepted.
- 1.5 By submitting this proposal, the proposer certifies under penalty of perjury that they have not acted in collusion with any other proposer or potential Proposer.

2. PREPARATION OF PROPOSAL

- 2.1 It is the responsibility of the proposer to carefully examine the specifications and proposal documents and to be familiar with all of the requirements, stipulations, provisions, and conditions surrounding the proposed services. **DO NOT SUBMIT A PROPOSED CONTRACT. UPON ACCEPTANCE BY THE VILLAGE, THIS RFP DOCUMENT SHALL BECOME A BINDING CONTRACT.**
- 2.2 No oral or telephone interpretations of specifications shall be binding upon the Village. All requests for interpretations or clarifications shall be made in writing and received by the Village at least five (5) business days prior to the date set for receipt of proposals. All changes or interpretations of the specifications shall be made by the Village in a written addendum to our proposer's of record.
- 2.3 In case of error in the extension of prices in the proposal, the hourly rate or unit price will govern. In case of discrepancy in the price between the written and numerical amounts, the written amount will govern.
- 2.4 All costs incurred in the preparation, submission, and/or presentation of any proposal including any proposer's travel or personal expenses shall be the sole responsibility of the proposer and will not be reimbursed by the Village.
- 2.5 The proposer hereby affirms and states that the prices quoted herein constitute the total cost to the Village for all work involved in the respective items and that this cost also includes all insurance, royalties, transportation charges, use of all tools and equipment,

superintendence, overhead expense, all profits and all other work, services and conditions necessarily involved in the work to be done and materials to be furnished in accordance with the requirements of the Contract Documents considered severally and collectively.

3. MODIFICATION OR WITHDRAWAL OF PROPOSALS

- 3.1 A Proposal that is in the possession of the Village may be altered by a letter bearing the signature or name of person authorized for submitting a proposal, provided that it is received prior to the time and date set for the bid opening. Telephone, email or verbal alterations of a proposal will not be accepted.
- 3.2 A Proposal that is in the possession of the Village may be withdrawn by the proposer, up to the time set for the proposal opening, by a letter bearing the signature or name of person authorized for submitting proposals. Proposals may not be withdrawn after the proposal opening and shall remain valid for a period of ninety (90) days from the date set for the proposal opening, unless otherwise specified.

4. RESERVED RIGHTS

- 4.1 The Village of Downers Grove reserves the exclusive right to waive sections, technicalities, irregularities and informalities and to accept or reject any and all proposals and to disapprove of any and all subcontractors as may be in the best interest of the Village. Time and date requirements for receipt of proposal will not be waived.

II. TERMS AND CONDITIONS

5. VILLAGE ORDINANCES

- 5.1 The successful proposer will strictly comply with all ordinances of the Village of Downers Grove and laws of the State of Illinois.

6. USE OF VILLAGE'S NAME

- 6.1 The proposer is specifically denied the right of using in any form or medium the name of the Village for public advertising unless express permission is granted by the Village.

7. INDEMNITY AND HOLD HARMLESS AGREEMENT

- 7.1 To the fullest extent permitted by law, the Proposer shall indemnify, keep and save harmless the Village and its agents, officers, and employees, against all injuries, deaths, losses, damages, claims, suits, liabilities, judgments, costs and expenses, which may arise directly or indirectly from any negligence or from the reckless or willful misconduct of the Proposer, its employees, or its subcontractors, and the Proposer, its employees, or its subcontractors, and the Proposer shall at its own expense, appear, defend and pay all charges of attorneys and all costs and other expenses arising therefrom or incurred in connection therewith, and, if any judgment shall be rendered against the Village in any such action, the Proposer shall, at its own expense, satisfy and discharge the same. This



Agreement shall not be construed as requiring the Proposer to indemnify the Village for its own negligence. The Proposer shall indemnify, keep and save harmless the Village only where a loss was caused by the negligent, willful or reckless acts or omissions of the Proposer, its employees, or its Subcontractors.

8. NONDISCRIMINATION

8.1 Proposer shall, as a party to a public contract:

- (a) Refrain from unlawful discrimination in employment and undertake affirmative action to assure equality of employment opportunity and eliminate the effects of past discrimination;
- (b) By submission of this proposal, the Proposer certifies that he is an "equal opportunity employer" as defined by Section 2000(e) of Chapter 21, Title 42, U.S. Code Annotated and Executive Orders #11136 and #11375, which are incorporated herein by reference. The Equal Opportunity clause, Section 6.1 of the Rules and Regulations of the Department of Human Rights of the State of Illinois, is a material part of any contract awarded on the basis of this proposal.

8.2 It is unlawful to discriminate on the basis of race, color, sex, national origin, ancestry, age, marital status, physical or mental handicap or unfavorable discharge for military service. Proposer shall comply with standards set forth in Title VII of the Civil Rights Act of 1964, 42 U.S.C. Secs. 2000 et seq., The Human Rights Act of the State of Illinois, 775 ILCS 5/1-101 et. seq., and The Americans With Disabilities Act, 42 U.S.C. Secs. 12101 et. seq.

9. SEXUAL HARASSMENT POLICY

9.1 The proposer, as a party to a public contract, shall have a written sexual harassment policy that:

- 9.1.1 Notes the illegality of sexual harassment;
- 9.1.2 Sets forth the State law definition of sexual harassment;
- 9.1.3 Describes sexual harassment utilizing examples;
- 9.1.4 Describes the Proposer's internal complaint process including penalties;
- 9.1.5 Describes the legal recourse, investigative and complaint process available through the Illinois Department of Human Rights and the Human Rights Commission and how to contact these entities; and
- 9.1.6 Describes the protection against retaliation afforded under the Illinois Human Rights Act.

10. EQUAL EMPLOYMENT OPPORTUNITY

10.1 In the event of the Proposer's non-compliance with the provisions of this Equal Employment Opportunity Clause, the Illinois Human Rights Act or the Rules and Regulations of the Illinois Department of Human Rights ("Department"), the Proposer

may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, and the contract may be canceled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation. During the performance of this contract, the Proposer agrees as follows:

- 10.1.1 That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, marital status, national origin or ancestry, age, physical or mental handicap unrelated to ability, sexual orientation, sexual identity or an unfavorable discharge from military service; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.
- 10.1.2 That, if it hires additional employees in order to perform this contract or any portion thereof, it will determine the availability (in accordance with the Department's Rules and Regulations) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.
- 10.1.3 That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, marital status, national origin or ancestry, age, physical or mental handicap unrelated to ability, or an unfavorable discharge from military services.
- 10.1.4 That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Proposer's obligations under the Illinois Human Rights Act and the Department's Rules and Regulations. If any such labor organization or representative fails or refuses to cooperate with the Proposer in its efforts to comply with such Act and Rules and Regulations, the Proposer will promptly so notify the Department and the contracting agency and will recruit employees from other sources when necessary to fulfill its obligations thereunder.
- 10.1.5 That it will submit reports as required by the Department's Rules and Regulations, furnish all relevant information as may from time to time be requested by the Department or the contracting agency, and in all respects comply with the Illinois Human Rights Act and the Department's Rules and Regulations.
- 10.1.6 That it will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency and the Department for purpose of investigation to ascertain compliance with the Illinois Human Rights Act and the

Department's Rules and Regulations.

10.1.7 That it will include verbatim or by reference the provisions of this clause in every subcontract it awards under which any portion of the contract obligations are undertaken or assumed, so that such provisions will be binding upon such subcontractor. In the same manner as with other provisions of this contract, the Proposer will be liable for compliance with applicable provisions of this clause by such subcontractors; and further it will promptly notify the contracting agency and the Department in the event any subcontractor fails or refuses to comply therewith. In addition, the Proposer will not utilize any subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivision or municipal corporations.

11. DRUG FREE WORK PLACE

Proposer, as a party to a public contract, certifies and agrees that it will provide a drug free workplace by:

- 11.1 Publishing a statement: (1) Notifying employees that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance, including cannabis, is prohibited in the Village's or proposer's workplace. (2) Specifying the actions that will be taken against employees for violations of such prohibition. (3) Notifying the employee that, as a condition of employment on such contract or grant, the employee will: (A) abide by the terms of the statement; and (B) notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.
- 11.2 Establishing a drug free awareness program to inform employee's about: (1) the dangers of drug abuse in the workplace; (2) the Village's or proposer's policy of maintaining a drug free workplace; (3) any available drug counseling, rehabilitation and employee assistance programs; (4) the penalties that may be imposed upon employees for drug violations.
- 11.3 Providing a copy of the statement required above to each employee engaged in the performance of the contract or grant and to post the statement in a prominent place in the workplace.
- 11.4 Notifying the contracting or granting agency within ten (10) days after receiving notice of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction from an employee or otherwise receiving actual notice of such conviction.
- 11.5 Imposing a sanction on, or requiring the satisfactory participation in a drug abuse assistance or rehabilitation program by any employee who is so convicted as required by section 5 of the Drug Free Workplace Act.

- 11.6 Assisting employees in selecting a course of action in the event drug counseling, treatment and rehabilitation is required and indicating that a trained referral team is in place.
- 11.7 Making a good faith effort to continue to maintain a drug free workplace through implementation of the Drug Free Workplace Act.

12. PATRIOT ACT COMPLIANCE

The Proposer represents and warrants to the Village that neither it nor any of its principals, shareholders, members, partners, or affiliates, as applicable, is a person or entity named as a Specially Designated National and Blocked Person (as defined in Presidential Executive Order 13224) and that it is not acting, directly or indirectly, for or on behalf of a Specially Designated National and Blocked Person. The Proposer further represents and warrants to the Village that the Proposer and its principals, shareholders, members, partners, or affiliates, as applicable are not, directly or indirectly, engaged in, and are not facilitating, the transactions contemplated by this Agreement on behalf of any person or entity named as a Specially Designated National and Blocked Person. The Proposer hereby agrees to defend, indemnify and hold harmless the Village, and its elected or appointed officers, employees, agents, representatives, engineers and attorneys, from and against any and all claims, damages, losses, risks, liabilities and expenses (including reasonable attorney's fees and costs) arising from or related to any breach of the foregoing representations and warranties.

13. INSURANCE REQUIREMENTS/INDEMNIFICATION

- 13.1 The Proposer shall be required to obtain, from a company or companies lawfully authorized to do business in the jurisdiction in which the project is located, such general liability insurance which, at a minimum, will protect the Proposer from the types of claims set forth below which may arise out of or result from the Proposer's operations under this agreement and for which the Proposer may legally liable:
 - 13.1.1 Claims under workers compensation, disability benefit and other similar employee benefit acts which are applicable to the operation to be performed;
 - 13.1.2 Claims for damages resulting from bodily injury, occupational sickness or disease, or death of the Proposer's employees;
 - 13.1.3 Claims for damages resulting from bodily injury, sickness or disease, or death of any person other than the Proposer's employees;
 - 13.1.4 Claims for damages insured by the usual personal injury liability coverage which are sustained: (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Proposer, or (2) by

Village of Downers Grove

another person;

- 13.1.5 Claims for damages, other than to the work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- 13.1.6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- 13.1.7 Claims for damages as a result of professional or any other type of negligent action by the Proposer or failure to properly perform services under the scope of the agreement between the Proposer and the Village.
- 13.2 The Proposer shall demonstrate having insurance coverage for a minimum of \$2 million for professional liability (errors and omissions).
- 13.3 As evidence of said coverages, Proposer shall provide the Village with certificates of insurance naming the Village of Downers Grove as an additional insured and include a provision for cancellation only upon at least 30 days prior notice to the Village.
- 13.4 In addition to required insurance coverages, the Proposer shall indemnify and hold harmless the Village and its officers, employees and agents from any and all liability, losses or damages the Village may suffer as a result of claims, demands, suits, actions or proceedings of any kind or nature in any way resulting from or arising out of negligent action on the part of the Proposer or any sub-Proposer to the Proposer under the Proposer's agreement with the Village.
- 14. CAMPAIGN DISCLOSURE**
 - 14.1 Any contractor, proposer, Proposer or vendor who responds by submitting a bid or proposal to the Village of Downers Grove shall be required to submit with its bid submission, an executed Campaign Disclosure Certificate, attached hereto.
 - 14.2 The Campaign Disclosure Certificate is required pursuant to the Village of Downers Grove Council Policy on Ethical Standards and is applicable to those campaign contributions made to any member of the Village Council.
 - 14.3 Said Campaign Disclosure Certificate requires any individual or entity bidding to disclose campaign contributions, as defined in Section 9-1.4 of the Election Code (10 ILCS 5/9-1.4), made to current members of the Village Council within the five (5) year period preceding the date of the bid or proposal release.
 - 14.4 By signing the bid documents, contractor/proposer/Proposer/vendor agrees to refrain from making any campaign contributions as defined in Section 9-1.4 of the Election Code (10 ILCS 5/9-1.4) to any Village Council member and any challengers seeking to serve as a member of the Downers Grove Village Council.

15. SUBLETTING OF CONTRACT

- 15.1 No contract awarded by the Village shall be assigned or any part sub-contracted without the written consent of the Village Manager. In no case shall such consent relieve the Awarded Proposer from their obligation or change the terms of the contract.

All approved sub-contracts shall contain language which incorporates the terms and conditions of this contract.

16. TERM OF CONTRACT

- 16.1 The term of this contract shall be as set forth in the Detail Specifications set forth in Section III below. This contract is subject to the Village purchasing policy with regard to any extensions hereof.

17. TERMINATION OF CONTRACT

- 17.1 In the event of the Proposer's nonperformance, breach of the terms of the Agreement, or for any other reason, the Agreement may be canceled, in whole or in part, upon the Village's written notice to the Proposer. The Village will pay the Proposer's costs actually incurred as of the date of receipt of notice of default. Upon termination, the Proposer will deliver all documents and products of whatever kind, and their reproducible originals related to the project, which have been produced to the date of the notice of default.

18. BILLING & PAYMENT PROCEDURES

- 18.1 Payment will be made upon receipt of an invoice referencing Village purchase order number. Once an invoice and receipt of materials or service have been verified, the invoice will be processed for payment in accordance with the Village payment schedule. The Village will comply with the Local Government Prompt Payment Act, 50 ILCS 505/1 et seq., in that any bill approved for payment must be paid or the payment issued to the Proposer within 60 days of receipt of a proper bill or invoice. If payment is not issued to the Proposer within this 60 day period, an interest penalty of 1.0% of any amount approved and unpaid shall be added for each month or fraction thereof after the end of this 60 day period, until final payment is made.
- 18.2 The Village shall review in a timely manner each bill or invoice after its receipt. If the Village determines that the bill or invoice contains a defect making it unable to process the payment request, the Village shall notify the Proposer requesting payment as soon as possible after discovering the defect pursuant to rules promulgated under 50 ILCS 505/1 et seq. The notice shall identify the defect and any additional information necessary to correct the defect.
- 18.4 Please send all invoices to the attention of Village of Downers Grove, Accounts Payable, 801 Burlington, Downers Grove, IL 60510.

19. RELATIONSHIP BETWEEN THE PROPOSER AND THE VILLAGE

- 19.1 The relationship between the Village and the Proposer is that of a buyer and seller of professional services and it is understood that the parties have not entered into any joint venture or partnership with the other.

20. STANDARD OF CARE

- 20.1. Services performed by Proposer under this Agreement will be conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. No other representations express or implied, and no warranty or guarantee is included or intended in this Agreement, or in any report, opinions, and documents or otherwise.
- 20.2 If the Proposer fails to meet the foregoing standard, Proposer will perform at its own cost, and without reimbursement from the Village, the professional services necessary to correct errors and omissions caused by Proposer's failure to comply with the above standard and reported to Proposer within one (1) year from the completion of Proposer's services for the Project.
- 20.3 For Professional Service Agreements (i.e. Engineer, Proposer): Project site visits by Proposer during construction or equipment installation or the furnishing of Project representatives shall not make Proposer responsible for: (i) constructions means, methods, techniques, sequences or procedures; (ii) for construction safety precautions or programs; or (iii) for any construction contactor(s') failure to perform its work in accordance with contract documents.

21. GOVERNING LAW

- 21.1 This Agreement will be governed by and construed in accordance with the laws of the State of Illinois without regard for the conflict of laws provisions. Venue is proper only in the County of DuPage and the Northern District of Illinois.

22. SUCCESSORS AND ASSIGNS

- 22.1 The terms of this Agreement will be binding upon and inure to the benefit of the parties and their respective successors and assigns; provided, however, that neither party will assign this Agreement in whole or in part without the prior written approval of the other. The Proposer will provide a list of key staff, titles, responsibilities, and contact information to include all expected sub Proposers.

23. WAIVER OF CONTRACT BREACH

- 23.1 The waiver by one party of any breach of this Agreement or the failure of one party to enforce at any time, or for any period of time, any of the provisions hereof will be limited to the particular instance and will not operate or be deemed to waive any future breaches of this Agreement and will not be construed to be a waiver of any provision except for the particular instance.

24. AMENDMENT

- 24.1 This Agreement will not be subject to amendment unless made in writing and signed by

all parties.

25. NOT TO EXCEED CONTRACT

- 25.1 The contract price is a "not-to-exceed" cost. At any time additional work is necessary or requested, and the not-to-exceed price is increased thereby, any change, addition or price increase must be agreed to in writing by all parties who have executed the contract.

26. SEVERABILITY OF INVALID PROVISIONS

- 26.1 If any provisions of this Agreement are held to contravene or be invalid under the laws of any state, country or jurisdiction, contravention will not invalidate the entire Agreement, but it will be construed as if not containing the invalid provision and the rights or obligations of the parties will be construed and enforced accordingly.

27. NOTICE

- 27.1 Any notice will be in writing and will be deemed to be effectively served when deposited in the mail with sufficient first class postage affixed, and addressed to the party at the party's place of business. Notices shall be addressed to the Village as follows:

**Village Manager
Village of Downers Grove
801 Burlington Ave.
Downers Grove, IL 60515**

And to the Proposer as designated in the Contract Form.

28. COOPERATION WITH FOIA COMPLIANCE

Contractor acknowledges that the Freedom of Information Act may apply to public records in possession of the Contractor or a subcontractor. Contractor and all of its subcontractors shall cooperate with the Village in its efforts to comply with the Freedom of Information Act . 5 ILCS 140/1 et.seq.

III. DETAIL SPECIFICATIONS

The Village of Downers Grove ("Village") is seeking proposals from qualified manufacturer authorized vendors to provide a data center virtualization solution based on VMware vSphere 4.0 Advanced including servers, storage area network, software, professional services, training, and project management.

The Village data center consists of 28 servers running a mixture of Windows 2000, 2003, and 2008 in a Windows 2003 domain. Of these 28 servers, 19 may be good candidates for virtualization. The applications that run on these servers include a mixture of standard enterprise applications including Microsoft Exchange 2003, Microsoft SQL 2005, and IIS as well as an assortment of more specialized software including fleet and asset management software, police and fire messaging and mobile reporting, and local government finance software. Servers that will not be virtualized fall into two categories: servers that cannot be virtualized due to specialized hardware (multi-port modems, hardware keys for security) and servers that are not near the end of their expected life to be cost effective to virtualize. Servers in the latter category will be virtualized at a later date.

The servers that are to be virtualized have a total of 65 cores running at an aggregate speed of 60 GHz. Total RAM for these servers is 72 GB and total usable storage is 6,000 GB.

Special Attention Required:

Respondents should pay special attention to the Village's Exchange server which experiences a high I/O load. The proposed solution needs to ensure that performance of this server is not degraded in a virtualized environment under the proposed solution.

1. TECHNICAL REQUIREMENTS

1.1. HARDWARE

Vendor should provide an iSCSI based SAN utilizing redundant power supplies, fans, and hot spare drives. The Village currently uses mostly Dell servers but will consider any enterprise grade servers from a major manufacturer. All hardware is to include a minimum of a three year warranty. The Village will provide UPS backup and use existing rack space for this project. Currently there are approximately 24 gigabit ports available in the Village data center's existing switch stack, not including ports that will become available as existing servers become virtualized. If the vendor's solution requires more ports or a separate switch this cost should be included in the proposal. The Village currently uses Cisco switches.

1.2 SOFTWARE AND PROFESSIONAL SERVICES

Vendor should provide all VMware software appropriate for project and professional services to design and install all hardware components. Vendor should include costs to virtualize five of the 19 servers while training the Village staff in a knowledge transfer environment to allow them to

virtualize the remaining servers. Vendor should also include a time and materials cost for optional installation services should the Village require assistance virtualizing remaining servers.

1.3 OPTIONAL ITEMS

1.3.1 SAN Backup – The Village would like to explore options for backing up the proposed SAN. Currently all servers are backed up using a combination of tape based backup and disk-to-disk based backup housed on a variety of servers using older versions of ArcServe and Backup Exec. This option should include all hardware and software for a centralized backup solution using either disk to disk based backups or a combination of disk to disk and tape based backup.

1.3.2. Disaster Recovery – A long term goal of the Village is to establish a remote disaster recovery solution. The Village currently owns a dedicated fiber connecting Village Hall (data center) and Fire Station 2 (proposed disaster recovery site).

This option would include all necessary hardware and software to create a minimum virtualized disaster recovery site consisting of a replica of the data center's SAN data and one host server allowing the Village to bring up certain core servers at the remote site in the event of a disaster or a server failure in the data center.

The two optional items are NOT listed as Must Have features in this RFP and will not be considered until funds are available.. However, given the technical importance of these two components, the Village would like to potentially pursue these options in the near future.

When responding to the RFP, participating vendors may consider proposing four alternative designs:

- 1) required features only,
- 2) required system with only the SAN Backup option,
- 3) required system with only the Disaster Recovery option, or
- 4) required system with both optional features

2. THE PROJECT PROCESS

2.1 PROJECT CONTACTS

Project Main Contact:

Bill Herman, Assistant Director of I.S.

Office Phone: 630-434-5567

Email: bherman@downers.us

2.2 REVIEW AND SELECTION PROCESS

Staff will first review all proposals and make a recommendation to the Village's Technology Commission. The Technology Commission serves as an advisory committee to the Village Council. The final recommendation will be presented to the Village Council for final approval.

2.3 TIMEFRAME OF THE PROJECT

This project is included the 2011 FY budget which was approved by the Village Council on November 9, 2010. The project team starts the RFP process now (need to change before issuing it officially), and the actual installation will take place in the February and March 2011 timeframe.

2.4 INFORMATION SESSIONS

The project team will host two information sessions for participating vendors.

First session:

Date & Time: January 11, 2011, 9 am -11 am

Place: Village Hall, 801 Burlington Avenue, Downers Grove, IL 60515

Second session:

Date & Time: January 12, 2011, 9am-11am

Place: Village Hall, 801 Burlington Ava. Downers Grove, IL 60515

The purpose of informational sessions is to allow vendors to ask the project team additional questions and look at the current Village's IT environment.

To ensure a fair selection process, questions after the information sessions should be submitted in writing and E-Mailed to the contact person listed above. When replying, the team will send the questions and answers to all participating vendors via E-Mails.

2.5 EVALUATION OF PROPOSALS

The criteria of judging proposals are as follows

- Level of understanding the requirements given in this document,
- Design of the proposed solution,
- Proposed installation process (project management),
- Terms of maintenance,
- References, and
- Total cost.

In addition, the clarity of the proposal, the technical explanation of the proposed system, sample installation schedule, and vendor staff experiences are crucial factors in the selection process.

2.6 PROPOSAL COMPONENT REQUIREMENT

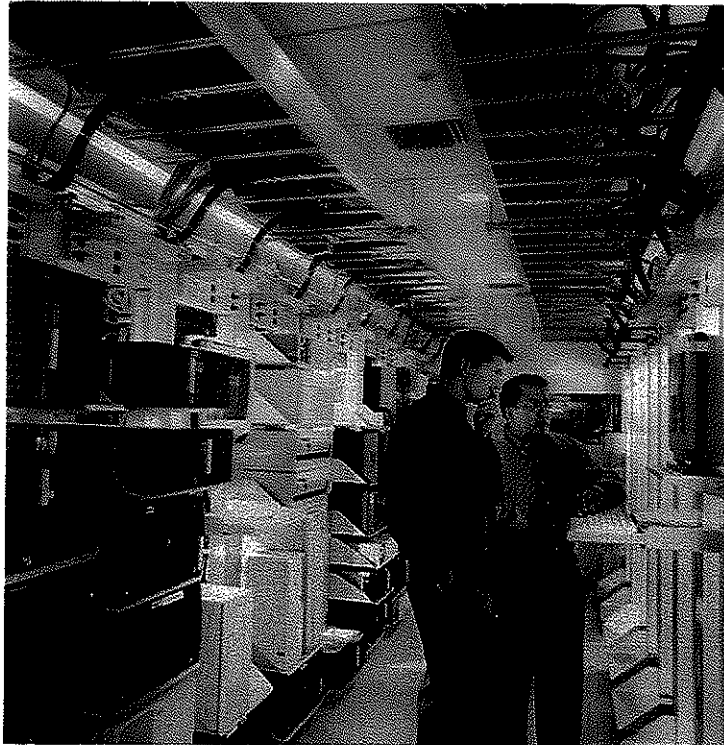
The proposal shall include:

- A one-page cover letter,
- Executive summary,
- Technical specifications,
- Proposed costs: 1) costs for required component, and 2) cost for optional component.
- Cost proposal format: costs shall be itemized to associate with each equipment and service proposed, and
- A complete list of clients for whom the vendor has successfully implemented virtualization projects. Please note, required is a complete list, not just top three clients. The project team will select three to four clients from the list for reference check.

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IV. PROPOSER'S RESPONSE TO RFP (Professional Services)





Centralized Storage & Virtualization Solution

*A PROPOSAL TO:
Village of Downers Grove*



January 21, 2011



sentinel®



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General Contact Information

Client Contact Information:

Bill Herman
Assistant Director of I.S.
Village of Downers Grove
801 Burlington Avenue
Downers Grove, IL 60515
630-434-5567

Sentinel Contact Information:

Tim Rico
Account Executive
2550 Warrenville Road
Downers Grove, IL 60515
630.769.4271 fax 630.769.1399
trico@sentinel.com

Bill Laflamme
Senior Solutions Architect
2550 Warrenville Road
Downers Grove, IL 60515
630.769.4337 fax 630.769.1399
wlaflamme@sentinel.com



Sentinel Technologies Overview

For more than 25 years, Sentinel Technologies has been recognized as a premier business technology services provider dedicated to delivering the highest quality customer service and support. Even as our services have spanned generations of technology, Sentinel has stayed at the forefront of IT developments and maintained a singular focus on providing practical and innovative solutions. With single-source accountability, Sentinel processes and teams can efficiently address a range of IT needs - from end-to-end solutions to targeted applications. Our proven success has allowed us to expand from our original charter of providing technology maintenance services to our current standing as one of the leading IT services and solutions provider in the U.S.

Sentinel provides our customers with the complete solution: *vision, design, product, implementation, documentation, and support.* With five independently managed offices in Chicago, Milwaukee, Phoenix Az., Ann Arbor, Michigan and Springfield, Illinois, we service our customers both nationally and internationally. By aligning with many of today's global technology leaders including Cisco, Microsoft, EMC, and VMware, Sentinel solutions achieve tangible results.

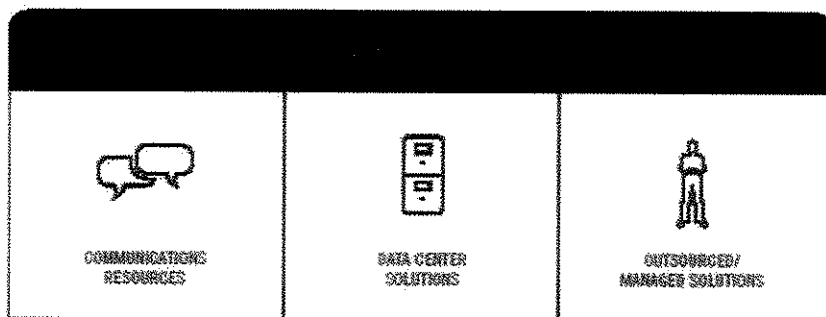
When it comes to achieving a tangible ROI and sustainable performance from your IT environment, Sentinel stands apart.





Sentinel Core Solutions

Highly skilled Sentinel teams provide technology products and solutions in three core segments: **Communications technologies; Data Center; and Outsourced / Managed Solutions.**



Communication Solutions

- ☞ Unified Communications
- ☞ Indoor/Outdoor Wireless
- ☞ Tele/Video/Web Conferencing
- ☞ Contact Center
- ☞ Digital Signage
- ☞ Physical Security

Data Center Solutions

- ☞ Virtualization
- ☞ Disaster Recovery and Backup
- ☞ LAN / WAN Infrastructure
- ☞ Network & Security Assessment
- ☞ Network, Email, and Web Security
- ☞ Data Center Design

Outsourced/Managed Solutions

- ☞ Network Administration
- ☞ Maintenance Contracts
- ☞ Remote Network Monitoring
- ☞ Managed Conferencing Solutions
- ☞ Temporary Staffing



Company Overview

Sentinel provides our customers with the complete solution: vision, design, product, implementation, documentation, and support.

Sentinel's services span the range of business verticals in mid-market, upper mid-market and enterprise level organizations. Companies in the **Healthcare, Financial / Banking, Government / Education, Legal, Utilities, and Manufacturing** verticals have taken advantage of Sentinel's ability to take either full responsibility or act as a supplemental contributor to our customer's business technology initiatives.

Sentinel offers customers an attractive alternative to provide network designs and assessments, project deployments and remedial support services. Sentinel's large service staff (400 – 500 employees), multitude of OEM certifications, a 24/7 Customer Care Center and a professionalism and commitment to service excellence act in combination to ensure a successful engagement. For customer led projects, Sentinel subject matter experts are a seamless addition to the customer's team, providing the right resource and expertise when it's needed.

Our Valued Partners

Sentinel recognizes that the quality of our solution partners directly affects the quality and value of the solutions we deliver to our customer. Our strategy is to partner with the best in the industry and obtain the highest level of certification available from all our key partners which in turn enable us to buy at the best price available. This ensures that we not only have the technical and business expertise to deliver on our promise but we can do so in the most cost-effective manner possible.

Sentinel is proud to maintain the following organizations as our strategic business partners.

Key Partner Certification Levels





Valued Partners





Our Clients



GOVERNMENT

Chicago Housing Authority
Chicago Transit Authority
City of Bowling Green
City of Joliet
City of Naperville
City of Phoenix
City of Rockford
Cook County
DuPage County
Gila River Indian Community
State of Illinois
State of Idaho
Village of Downers Grove
Village of Huntley
Village of Palatine
Village of Wheeling



EDUCATION

Ann Arbor Public Schools
Arizona State University
Chicago City Colleges
Chicago Public Schools
Champaign CUSD 4
Eastern Illinois University
Homer 33C
ITT Technical Institute
Kalamazoo College
Loyola University Chicago
McHenry County College
Perspectives Charter Schools
Roosevelt University
Schaumburg SD 54
University of Chicago
University of Michigan



HEALTHCARE

Advocate Healthcare
DeKalb Clinic
DuPage Medical Group
Cancer Treatment Centers of America
Cook County Hospital
Children's Memorial
Gila River Healthcare Corporation
Hospice of Northeastern Illinois
Midwest Palliative & Hospice CareCenter
Norwood Crossing
Passavant Area Hospitals
Resurrection Healthcare
Rush Presbyterian St. Luke's Hospital
Silver Cross Hospital
Toshiba Medical Research Institute
VCPI-Virtual Care Providers, Inc.



MANUFACTURING

AM Castle
Amcol
Chamberlain Group
Chicago Bridge and Iron-CB&I
Danfoss Inc
Komatsu Corporation
Kohler Co.
Kone
Naico Company
Panduit
Rustoleum
Tenneco Automotive



BANKING & FINANCIAL SERVICES

ABN Amro
American Express
Ariel Investments
Banco Popular
Chicago Trading Company Holdings
Citibank
First Analysis
First Midwest Bank
NewEdge Financial
OptionsXpress
Optiver
PPM America LLP



RETAIL

Art Van Furniture
Brookfield Zoo
Capital Fitness
Casino Arizona
Coinstar
Crescent Crown
Dot Foods
East Bank Club
Field Museum
National Van Lines
Redbox Automated Retail
SC Johnson & Sons Inc



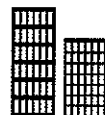
UTILITIES

Central IL. Water, Light and Power
City Water Light & Power-Springfield, IL
Exelon
We Energies-Wisconsin



PROFESSIONAL SERVICES

Axiom Corporation
A.J. Gallagher
AT Kearney
Duff and Phelps, LLP
HPR Partners
Locke Lord Bissell and Liddell
Mayer Brown Rowe & Maw
Unitrin Data Systems
Videojet
Zenith Administrators



REAL ESTATE

AML Residential Properties
Bentley Forbes
CB Richard Ellis
GITC-Greater Illinois Title Company
LeaseCorp
Marmon Group
NAI Hiffman
US Equities



Our Qualifications

At Sentinel Technologies, our strategy is to partner with the best in the industry. We then obtain the highest level of solution specialization available from these key partners.

Company Technical Specialization Certifications

The following Manufacturer Technology Certifications recognize Sentinel's expertise within each of our manufacturer partner's technologies.

Specialist Designation from Cisco in:

- ⌚ Unified Communications Master (Only 20 in U.S.)
- ⌚ Advanced Routing & Switching
- ⌚ Advanced Security
- ⌚ Advanced Wireless LAN
- ⌚ Digital Media
- ⌚ Advanced Data Center Networking Infrastructure



Advanced Technology Partner (ATP) from Cisco in the following areas:

- ⌚ Video Surveillance
- ⌚ Outdoor Wireless Mesh
- ⌚ Emergency Notification Interoperability
- ⌚ Unified Contact Center Enterprise

Microsoft **Specializations**

- ⌚ Information Worker Productivity
- ⌚ Networking Infrastructure.



EMC **Specializations**

- ⌚ Information Worker Productivity
- ⌚ Networking Infrastructure



VMware **Specializations**

- ⌚ Information Worker Productivity
- ⌚ Networking Infrastructure





Individual Technical Certifications

Sentinel makes substantial investments in keeping the training of our technical, sales and design team members up to date. We possess hundreds of vendor technical certifications and continuous technical education and training is a way of life. This ensures we have the technical and business expertise to deliver on our promise.

We also spend numerous hours in the computer lab applying and testing theory before we go to the customer site. This combination of classroom and lab training ensures we are properly trained and have already gone through much of the learning curve – the result is we know how to respond when the unexpected occurs.

Sentinel possesses over 2000 technical certifications from our manufacturer partners. A sampling is below.

Individual Technical Certifications Network Integration

235 Cisco Certifications

- CCIE – 4, CCDP – 3, CCDA – 7, CCNA – 19, CCNP – 8, CCSP – 2
- Unified Communications Specialist Certifications – over 50
- Sales and Design certified



114 Microsoft Certifications

- MCSE – 41
- Sales and Design certified



Additional Individual Certifications in:



Individual Technical Certifications – Maintenance and Repair

- HP – 1135 certifications (workstations, notebooks, server, printer etc)
- Dell – 252 certifications (server, storage, notebook etc)
- Lenovo – 79 certifications (desktop/laptop)
- Lexmark – 40+ certifications (printers)
- PC Support -107 Certifications (workstations, notebooks, server, printer etc)





Customer Satisfaction Qualifications

- Recipient of Advocate Healthcare Corporate Partner Award
- Recipient of AM Castle Supplier of the Year Award
- Recipient of Illinois Auto Auctions Inc. Outstanding Performance Award
- Recipient of hundreds of letters from customers recognizing outstanding contribution and performance

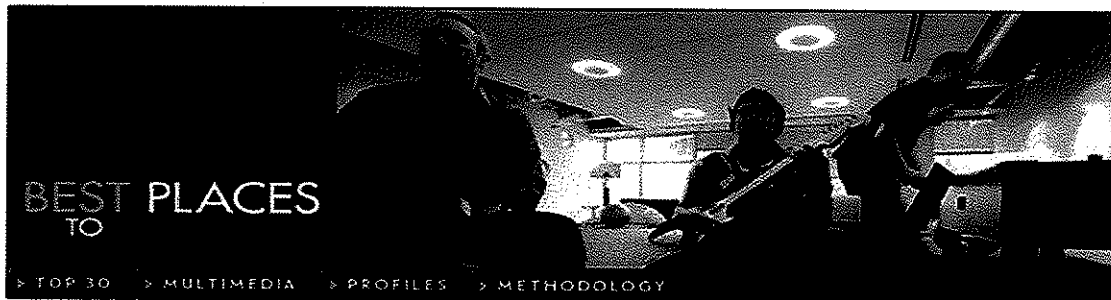
Technology Partner Awards

- Recipient of Cisco Customer Satisfaction Excellence Award for six straight years
- Best year over year performance in Central Operations District
- Best year over year performance U.S. Regional VAR
- Best of AVVID Show Award in Customer Satisfaction for Sentinel's IQ for Education application suite for Cisco IP phones
- Awarded Cisco "Global IP Communications Partner of the year"
- Awarded Cisco "Great-Lakes-Region, Partner of the year"
- Awarded Cisco "Central Region IP Communications – Top Partner"
- Awarded Cisco "Central Region Partner Summit - Partner of the Year"
- Awarded Cisco Wireless "Excellence in Partnership"
- Six time HP Service Excellence Award Winner



Employee Satisfaction Qualifications

Sentinel has been named as one of Chicago's Best Places to Work in 2009 (#13) and 2008 (Top 30).



RANK	COMPANY	RANK	COMPANY	HONORABLE MENTION
1	Google Inc.	11	System Development Integration Inc.	CareerBuilder LLC
2	Microsoft Corp.	12	ThoughtWorks Inc.	Ernst & Young LLP
3	Transwestern Commercial Services	13	Chubb Group of Insurance Cos	Forsythe Technology Inc.
4	Diamond Management & Technology Consultants Inc.	14	Avanade Inc.	Jones Lang LaSalle Inc.
5	Wrightwood Capital	15	Weber Shandwick	KPMG LLP
6	Staubach Co.	16	Perkins Cole LLP	Pepper Construction Co.
7	William Blair & Co.	17	McDonald's Corp.	Phoenix International Freight Services Ltd.
8	Resources Global Professionals	18	Mesirow Financial Holdings Inc.	Sentinel Technologies Inc.
9	Assurance Agency Ltd.	19	GolinHarris International Inc.	Sidley Austin LLP
10	Upshot	20	DraftFCB Inc.	Wheels Inc.



Industry Knowledge

Sentinel Technologies utilizes Best Practices and Quality Control processes with all implementation projects. We are familiar with private and public sector organizations and have worked with many local government and educational entities.

Executive Summary

Village of Downers Grove understands the importance and challenges of its information technology infrastructure and has made a significant investment in time and money developing an environment critical to the success of its business. Village of Downers Grove currently has an aging server infrastructure and has an initiative to update this infrastructure so business benefits can be realized.

To achieve the desired goal, Sentinel is proposing the implementation of a VMware virtual server environment with an EMC unified storage solution. The consolidated server and storage environment will provide the following benefits:

- Business continuity/High availability (HA)
- Enables high speed non-disruptive server workload movement
 - Expedited server migrations
 - Server failover capability
 - Server load balancing capability
- Simplifies management
 - Centralized storage management
 - Improved service levels
- Increases flexibility
 - Optimize server/storage capacity planning
 - Significantly reduce scheduled downtime
- Reduces total cost of ownership
 - Improved capacity utilization
 - Requires fewer high-powered systems

Overall, this solution will introduce improved efficiency and resilience into the Village of Downers Grove file and application server network.

The main components being purchased as part of this solution are as follows:

- VMware vSphere 4 licensing for up to 4 servers
- VMware vCenter
- EMC storage array with approximately 9TB of usable space
- EMC Unisphere storage management
- Cisco UCS C-Series Servers
- Cisco Catalyst 3750 Switches for SAN connectivity

The EMC unified storage array in order to take advantage of shared storage and the ability to provide High Availability to the virtual VMware environment. This virtual environment is to be installed onto (3) servers connected to the new storage array. VMware vCenter serves as the management console of the virtual environment and is the instrument for moving virtual machines via VMotion.

P2V is the VMware tool that allows migration of an application from a physical machine to a virtual machine. This tool speeds the process of migration without impacting the server environment being virtualized.



EMC VNXe 3300 Configuration:

Vault: RAID5 (4+1) 5x600GB 15k SAS (2.4TB)

Application Data RAID5 (7+1) 17x600GB 15k SAS (9.6TB)

Backup Option: NAS RAID6 (4+2) 6x2TB 7.2k SATA (8TB)

Hot Spares: 2x600GB 15k SAS



Project Management and Methodology



Sentinel is committed to producing high quality results as efficiently as possible for our customers. This is why we have embraced professional project management as the cornerstone of every project we undertake.

Sentinel's approach to Project Management incorporates a unique blending of both Strategic and Tactical monitoring and control techniques thus realizing the "how" of the work we perform. We have achieved this via formal planning techniques and sophisticated virtualized work-flows - "Guides to Assembly" which are real mechanisms that help guide project participants through communication channels and work assignments in order to realize task sequence, manage risk, and avoid re-work.

Sentinel's Enterprise Project Management Organization has a large core of PMP certified project managers who work with our customer and the assigned Sentinel technical project team to ensure we deliver on our promise. Our PM's have the professional certification and a strong technical background necessary to provide the management and guidance required to keep projects on time and on budget. Sentinel's EP MO utilizes tools such as Microsoft Sharepoint Portal and Organizational Project Management Maturity Model (OPM3) along with basic blocking and tackling around issues like defects, root cause analysis and risk mitigation to deliver optimum results.

For projects requiring project management (typically 80+ hours of technical services), Sentinel will adhere to the following guidelines.*

Introduction Call

Within 2 days business days of PMO notification, a Sentinel Project Manager will contact you for an introduction and to answer any questions you might have.

Schedule External Kickoff

Within 3 business days of the introduction call, the Project Manager will call again to arrange a time and date to set up an initial "Customer Kickoff" meeting with you and your Team.

(Between the Introduction Call and the subsequent Kick-Off Meeting, Sentinel assembles the project team for a Internal Kickoff or formal review of the project's characteristics, inherent risks, and to perform formal planning and scheduling.)

Kick-Off Meeting (Customer Site)

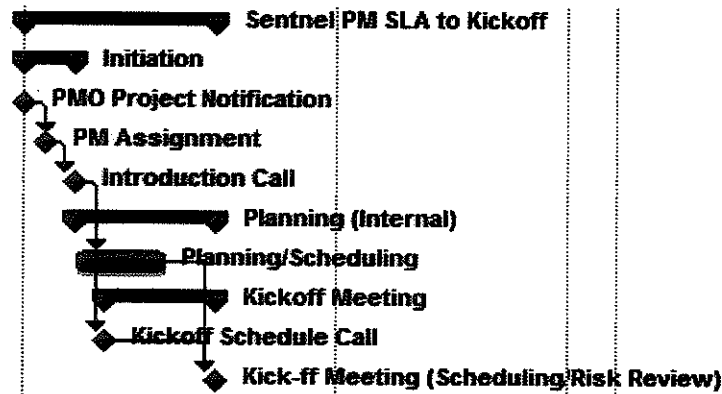
10 business days from the Introduction Call, the Customer Kick-Off will be held at the customer location.

The purpose of this meeting:

- Acceptance of Initiation Documentation, Risk Review and Top Down Structured Planning (TDSP)
- Walk through (if needed depending on Solution purchased)
- Scheduling of Blueprint Meeting (s)



As a result of this session, a detailed (final) work schedule (MS Project) will be created and used to track and control the project. Once the schedule is complete and resources are scheduled the Design phase can commence.



*Depending on the size and complexity of the project, planning sessions and the subsequent creation of schedules and other administrative project management artifacts such as risk plans, communications plans, and resource scheduling, can extend out from the intervals shown above.

*Project Management process may be customized based on factors such as project size, urgency or complexity.

Knowledge Transfer, Training, and Support/Implementation Approach

EMC VNXE 3300

The initial engagement will be to install an EMC VNXE 3300 unified storage array which will connect to Village of Downers Grove's new Cisco switches. This solution will be installed in conjunction with the VMware implementation.

Sentinel will install the EMC VNXe 3300 unified storage array into the rack provided by Village of Downers Grove along with powering on the unit and getting the EMC "phone home" support feature connected and operational.

During the planning phase of the project, Sentinel will review the storage requirements for the servers being virtualized in order to create the disk LUN layout design. Sentinel Technologies will create a CIFS share to be the destination for existing file data residing on Microsoft file servers (customer is responsible for data migration). Sentinel will install EMC Base Software for utilization of the storage and UniSphere for management of the disk array.

Sentinel will configure the switch and the storage array for the virtual environment following best practices for this environment. Wherever possible, Sentinel will involve the customer for a knowledge transfer so that the customer has an understanding of their storage array enabling the customer to be able to manage their environment.



VMware vSphere 4

This engagement has been designed to combine the objectives listed below which include the VMware vSphere 4, Virtual Center and P2V engagement. Review the snapshot and backup environment for the vSphere 4 configurations in the event a server restore is required in a recovery scenario.

Objectives

- Set up, install, configure, and run VMware vSphere 4 Servers, tailored to your environment.
- Provide working virtual machines for testing and discussion
- Deliver VMware vSphere 4 Server knowledge transfer via an interactive proof of concept working session
 - VMware vSphere 4 Server installation and configuration
 - Virtual machine creation and management
- Provide consultation regarding the requirements for integrating VMware vSphere 4 Server into your enterprise operations
- Develop and implement best practices for product use

Agenda

Onsite – Day 1

- Review agenda
- Virtual machine overview
- Verify hardware specifications
- VMware vSphere 4 Server technical architecture
- VMware vSphere 4 Server installation and configuration
- Proof of concept: virtual machine creation and management

Onsite – Day 2

- Using VMware vSphere 4 Server
- Proof of Concept: Virtual machine deployment
- VMware vSphere 4 Server operations
- Review next steps

Follow-up

- Questions and issues follow-up
- Deployment next steps

vCenter

Objectives

- Provide training for configurations, features, and architecture of VMware vCenter
- Install VMware vCenter
- Demonstrate how to use vCenter for instant provisioning, zero-downtime maintenance and intelligent workload management
- Assist in integrating VMware vCenter with existing infrastructure
- Teach best practices

AGENDA

Onsite – Day 3

- VMware vCenter installation
- Overview of VMware vCenter
- Verify software and hardware specifications
- Explain features and architecture
- Review configuration constraints and issues
- Install product and demonstrate key features



- Create sample policies, roles, alerts
- Advise on: general operations, authentication, security, provisioning, SANs, DR / backup, and monitoring.
- Assist in creating integration plan

Follow-up

- Questions and issues follow-up
- Deployment next steps

P2V

Objectives

- Set up P2V migration environment
- Deliver P2V migration process knowledge transfer
 - VMware P2V Assistant training
 - Physical-to-virtual machine migration proof of concept by performing up to (4) P2V processes
- Provide consultation regarding the requirements for server migration and consolidation planning and consideration.

Agenda

Onsite—Day 4

- Review P2V migration agenda
- Verify software and hardware specifications
- VMware P2V Methodology training
- VMware P2V Assistant training
- P2V migration environment setup
- Proof of Concept: migration and physical server(s)
- Migration of physical servers (continued)
- Review

Follow-up

- Questions and issues follow-up

Technical Notes:

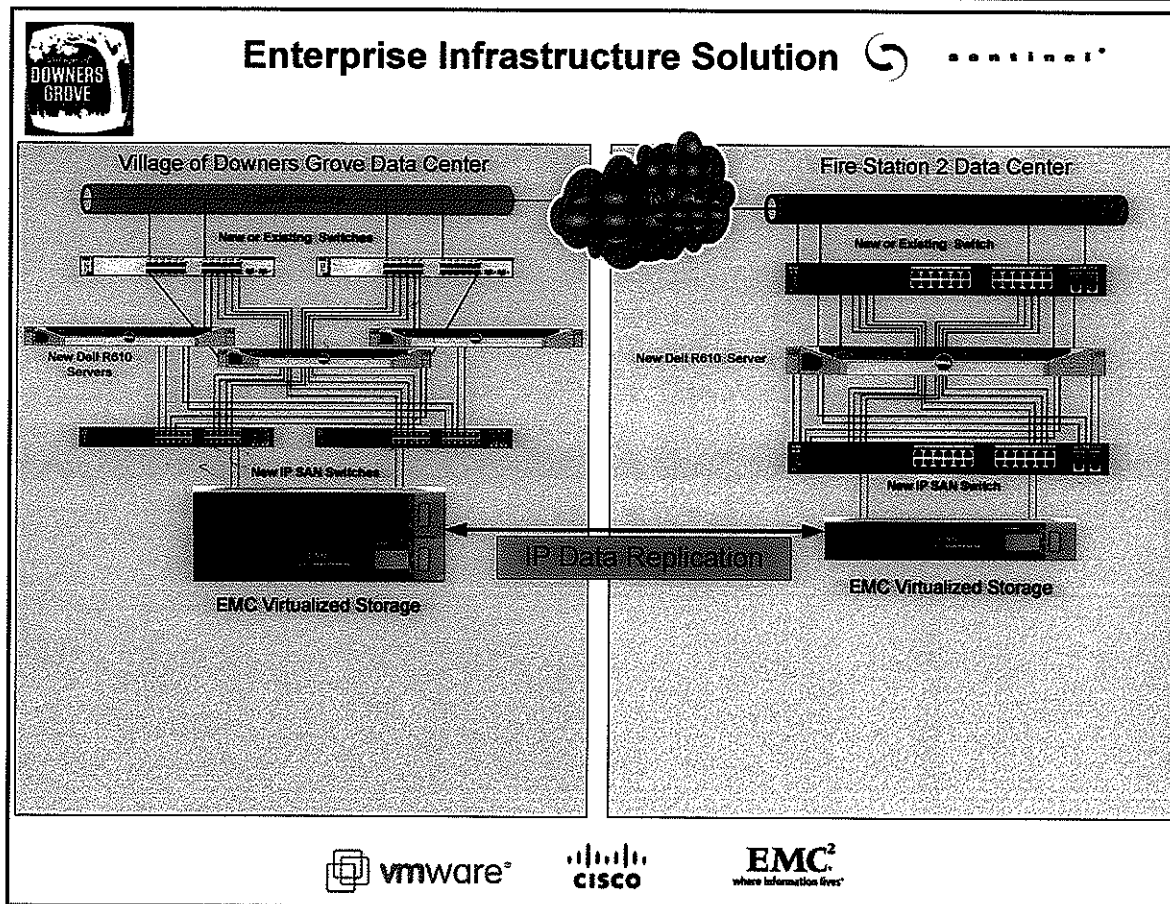
- Design Validation Process: This proposal to be considered draft until Sentinel Operational analysis of functional and physical requirements. Subject to change based on requirements gathering and architecture approval.
- General Cabling: All sites assumed to have proper cabling in place for proposed project. Customer provided patch cables assumed.
- Power: All sites are assumed to have ample power capacity & receptacles as well as proper power conditioning and UPS systems in place. All power cables and cabling is the responsibility of the customer.
- Rack/KVM: The customer will provide all necessary rack related equipment and insure that sufficient free rack space exists for the mounting of all project related equipment. Customer will also insure that sufficient KVM (Keyboard-Video-Mouse) ports and cables are available to connect any new equipment to existing KVM gear.



- Remote Support: Sentinel's service estimate assumes remote access support through IP VPN or an IP Web-Based Connection.
- Site Power: Power backup revision recommended. Unless noted here or within the equipment detail, Sentinel has not provided power backup analog lines, phones or cabling. There are many ways to provide this service including automatic power failure relay equipment and Sentinel can provide a recommendation and cost estimate upon request.
- Patching: Sentinel assumes unless noted here that the customer will patch in all equipment to the cabling plant within the facility. Sentinel can perform this connection service at an additional charge with an approved Project Change Request (PCR).
- Sentinel plans to deploy VMware vSphere 4.1 which requires Windows 2008 64-bit CALs.



Technical Design & Architecture





Assumptions

Project Assumptions:

- Agents/3rd Party Software: All anti-virus, backup, & other agent loading, configuring or troubleshooting is the customer's responsibility.
- Unless otherwise noted, Sentinel assumes Village of Downers Grove will deploy its existing backup software to protect new virtual machines and NAS shares via a mapped network drive.
- Backup/Data Loss: Customer staff is responsible for the creation, execution, and verification of any backups of the environment prior to any work conducted by Sentinel and throughout the project's duration. Customer must confirm the backup software is up-to-date and will be able to utilize the new LTO5 tape drive.
- Change Control/Outage: The customer is responsible for facilitating any change control procedures and scheduling to enable timely reboots and other activities related to the project within the scheduled project period. Delays incurred due to change control procedures and scheduling may result in additional cost.
- Documentation: The primary purpose of all documentation provided is to capture the specific configuration information unique to each customer environment. No standard procedural information will be included without additional service costs. The standard vendor documentation should be referenced as the authoritative source for routine administrative and installation tasks. Any planning of, development, creation or updates to any new or existing customer policy or procedural documentation is specifically out-of-scope.
- iSCSI connectivity of the storage and virtualization infrastructure will be provided via New Cisco 3750G switch ports.
- Performance/Patching/Troubleshooting: The patching, tuning, troubleshooting, and maintenance steps (including upgrades, installation, or re-installation) of equipment not supplied by Sentinel is the responsibility of the customer.
- Training: As it pertains to the Sentinel Professional Services, no formal or official training is provided as part of this project. The knowledge gained on the customer's part is assumed to be through direct exposure to project-related activities and the result of knowledge transfer that occurs between the implementation engineer(s) and the customer themselves. The customer is responsible for making themselves available to participate in this process and under no event shall project work be halted simply due to unavailability of customer staff to witness the events.

The following is a list of tasks that Sentinel assumes have been completed by the Client prior to the installation of the above-mentioned project. Sentinel will only perform the following tasks; after a Project Change Request [PCR] has been signed by an authorized member of the Client's IT Staff.

- ☞ IP addresses and network connections will be provided.
- ☞ Adequate space and power will be available for installing the VNXE 3300 array.
- ☞ A workstation or equivalent will be available for the "phone home" feature.
- ☞ Network connections and network cables will be available for connecting servers, IP switches and the VNXE 3300 data processors.
- ☞ All servers meet the minimum specifications to support VMware vSphere 4.x.
- ☞ All servers do not require full rebuild, are backed up and may be wiped by Sentinel Technologies technical consultants.
- ☞ All servers have a minimum of 6 NIC's available with 8 or 10 preferred for virtualization.
- ☞ Sentinel Technologies will be utilizing FC protocol for SAN connectivity.
- ☞ P2V conversions will not be done on Microsoft Exchange and any SQL DB >300GB.



- ☞ Sentinel Technologies recommends having Anti-Virus SW license on the VNXE 3300 to protect NAS.
- ☞ The customer's existing anti-virus software must be supported by EMC CAVA



s e n t i n e l ®

Village of Downers Grove Network Virtualization RFP Response Pricing

Presented By:

Tim Rico
Account Executive
Sentinel Technologies, Inc.
630-769-4271
trico@sentinel.com

Architected By:

Bill Laflamme
Senior Solutions Architect
Sentinel Technologies, Inc.
630-769-4337
wlaflamme@sentinel.com

VMware/Cisco/EMC Solution

EMC SAN HW, SW & Support	36,005.00
System Backup	8,319.00
Cisco Switches HW & Support	5,645.00
VMware SW & Support	18,141.00
Cisco Servers HW & Support	26,697.00
Section Total	94,807.00

TOTAL PROJECT

VMware/Cisco/EMC Solution	94,807.00
Professional Services	13,300.00
Project Total	108,107.00

Plus applicable tax, shipping & handling



s e n t i n e l *

Village of Downers Grove Proposal Assumptions

Technical Notes

Design Validation Process: This proposal to be considered draft until Sentinel operational analysis of functional and physical requirements. Subject to change based on requirements gathering and architecture approval.

Travel Requirements: Unless specified within proposal all travel expenses and time not included. Travel time to be invoiced at pre-negotiated rates and expenses plus per diem at actual costs.

General Cabling: All sites assumed to have proper cabling in place for proposed project. Customer provided patch cables assumed.

Power: Unless specified within this proposal, Sentinel assumes all power conditioning, UPS systems and cables provided by the customer.

Rack & K/V/MS: Unless specified within this proposal, Sentinel assumes the customer will provide all required rack equipment, keyboard/monitor/video switching and other site specific installation hardware. Sentinel can provide this upon request with additional planning.

Remote Support: Sentinel's service estimate assumes remote access support through IP VPN or IP PPP connection. Without this access additional services may be occurred for optimization and tuning required pre and post installation.

Site Power: Power backup provisions are recommended. Unless noted here or within the equipment detail, Sentinel has not provided power backup analog lines, phones or cabling. There are many ways to provide this service including automatic power failure relay equipment and Sentinel can provide a recommendation and cost estimate upon request.

During Project Changes: Sentinel assumes unless noted here that the customer will patch in all equipment to the cabling plant within the facility. Sentinel can perform this connection service at an additional charge with an approved Project Change Request (PCR).

Access Point Installation Limits: Sentinel has proposed wireless access point and bridge deployment assuming the safe use of ladders for installation or tower climbing. Any use of a lift or crane will increase the deployment cost as Sentinel will pass on any rental and operator fees. Sentinel does maintain an outdoor small lift truck for some jobs and does maintain ladders for installations where an 8 foot ladder is safely sufficient to install any component of the system. In addition, for safety purposes, Sentinel cannot install any access points or related equipment in elevator shafts. Installations requiring more than an 8 foot ladder, lift truck or installation in an elevator shaft must be brought to Sentinel's attention to accommodate these special circumstances.



s e n t i n e l *

Pricing & Ordering Notes

Cisco Lead Times: Sentinel has assumed pricing as a direct purchase on Cisco equipment. Lead times should be expected to be 8 weeks. Should expedited equipment requirements arise there will be an additional expedite charge to source through a warehousing distribution partner.

Method of Payment: Sentinel's expectation is that the Customer will issue payment to Sentinel by means of an electronic funds transfer or company check. Alternate payment methods such as credit cards may incur an additional financing fee.

Lease Estimates: Lease estimates based on Sentinel regularly updated rate tables. Actual and final lease to be quoted upon final contracts and based on interest rates and best available financing options.

Expedite Premium Charges: Unless otherwise noted all pricing reflects a direct Cisco order and is subject to Cisco lead times. Alternate sources for product may be required to meet project timeframes and requirements. Such an expedite will be considered and offered to the customer but will require a premium price beyond this quote for each item sourced through an expedite channel. Any expedite requiring Sentinel to use a stocking warehouse distributor as opposed to a Cisco direct purchase will incur a per item premium cost above the quoted pricing to be determined based on the expedited equipment. Any promotions or trade-in value lost in an expedite transaction may also increase the cost and would be quoted as applicable prior to executing the expedite order.

Village of Downers Grove Storage



SAN				
Description	Qty	Special Notes	Unit	Ext. Price
EMC VNXe 3300 Storage Array				
VNXE3300;2XSP DPE;15X3.5 DS;8X600GBSAS;AC;NO RACK	1		14,496	14,496
600GB 15K SAS DISK DRIVE	2		662	1,324
4200GB SAS DISK PACK (7 X 600GB 15K 3.5")	2		4,635	9,270
VNXE3300 SOFTWARE FEATURES	1		-	-
VNXE UNISPHERE-INCLUDED IN BASE SW	1		-	-
VNXE ISCSI-INCLUDED IN BASE SW	1		-	-
VNXE THIN PROVISIONING-INCLUDED IN BASE SW	1		-	-
VNXE NFS	1		-	-
VNXE CIFS-INCLUDED IN BASE SW	1		-	-
VNXE FILE DEDUPLICATION-INCLUDED IN BASE SW	1		-	-
VNXE BASE SW INCLUDING OE V2.0 (EMC ECOSYS)	1		7,413	7,413
ENHANCED SOFTWARE SUPPORT - PLATFORM/ELM	1	Note: 1 Year of Software Support	3,502	3,502
EMC SAN HW, SW & Support				36,005.00
Backup & Replication				
VEAM Backup and Replication for Vmware - 1 CPU + 1 Year Support and Subscription	6		533	3,198
EMC Storage Addons for Local Backup				
3U DAE WITH 15X3.5 INCH DRIVE SLOTS	1		1,584	1,584
12TB SAS DISK PACK (6 X 2TB 7200RPM SAS DISKS)	1		3,537	3,537
Hardware & Software Sub-Total				8,319
Cisco				
Catalyst 3750G 24 GigE Ethernet Switch				
Cisco Catalyst 3750G-24T Ethernet Switch	2	Note: Limited Lifetime Warranty	2,743	5,486
CISCO STACKWISE 1M STACKING CABLE	1		92	92
RJ45 CAT6 Snagless Blue Patch Cable 25pack-5 ft	1		67	67
Cisco Switches HW & Support				5,645.00
Storage & Backup Sub-Total				49,969

Village of Downers Grove
VMware



Vmware				
Description	Qty	Special Notes	Unit	Ext. Price
VMware ESX				
VMW VS4 MIDSZ AK 6 CPUS	1		13,728	13,728
PROD SNS VMW VS4 MIDSZ AK 6CPUS	1	24x7 1 year support	4,413	4,413
VMware SW & Support			<u>18,141</u>	

Village of Downers Grove Servers



Cisco Servers				
Description	Qty	Special Notes	Unit	Ext. Price
Cisco C200 Servers				
UCS C200 M2 Rack Svr 2X X5650 2X4GB 1PS	3		2,674	8,022
8GB DDR3-1333MHz RDIMM/PC3-10600/dual rank 2Gb DRAMs	24	Note: 64GB RAM/Server	351	8,424
Gen 2 300GB SAS 15K RPM 3.5in HDD/hot plug/C200 drive sled	6		411	2,466
Enable RAID 1 Setting	3		1	3
LSI 1064E (4-port SAS 3.0G RAID 0, 1, 1E) Mezz Card	3		129	387
Broadcom 5709 Quad Port 10/100/1Gb NIC w/TOE iSCSI	3		458	1,374
Intel Quad port GbE Controller (E1G44ETG1P20)	3		457	1,371
650W power supply unit for UCS C200 or C210 Server	3		257	771
Power Cord, 125VAC 13A NEMA 5-15 Plug, North America	6		-	-
Sentinel HANS - UC SUPPORT 8X5X4OS UCS C200 M2 Rack Svr, 2x X5650, 2x4GB	9	Note: Sentinel HANS Onsite 3 year 8x5x4 Support	431	3,879
Cisco Servers HW & Support			26,697.00	

Virtualization Projects - Representative Client List

AlphaMetrix
Attorney's Liability
Attorney Registration
Bison Gear & Engineering
Bulkmatic Transport
Capital Fitness
Champaign Unit 4 Schools
City of Joliet Defense Research Institute
Colliers Bennett
DeKalb Clinic
East Bank Club
EIT Benefit Fund
Enesco
First Midwest Bank
FP Mailing Solutions
Havi Logistics
Illinois College of Optometry
Joyce Foundation
Lockport Township High School
Loretto Hospital
MacArthur Foundation
Medical Marketing Service
Mueller & Co.
New Trier Township High School District 203
OAD Orthopedics
Optimum Nutrition
PPM America
Rippinger Financial Group
Segal McCambridge
Silver Cross Hospital
Spencer Foundation
Village of Streamwood

Village of Downers Grove

V. PROPOSAL/CONTRACT FORM

*****THIS PROPOSAL, WHEN ACCEPTED AND SIGNED BY AN AUTHORIZED SIGNATORY OF THE VILLAGE OF DOWNERS GROVE, SHALL BECOME A CONTRACT BINDING UPON BOTH PARTIES.**

Entire Block Must Be Completed When A Submitted Bid Is To Be Considered For Award
PROPOSER:

Sentinel Technologies, Inc.
Company Name

Date: 01/20/11

2550 Warrenville Road
Street Address of Company

trico@sentinel.com
Email Address

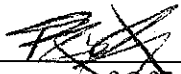
Downers Grove, IL 60515
City, State, Zip

Tim Rico
Contact Name (Print)


630-769-4271
Business Phone

800-860-8102
13-Hour Telephone

630-769-1399
Fax


Signature of Officer, Partner or
Sole Proprietor

ATTEST: If a Corporation


Signature of Corporation Secretary

Tim Hill, CFO
Print Name & Title

VILLAGE OF DOWNERS GROVE:

Authorized Signature

ATTEST:

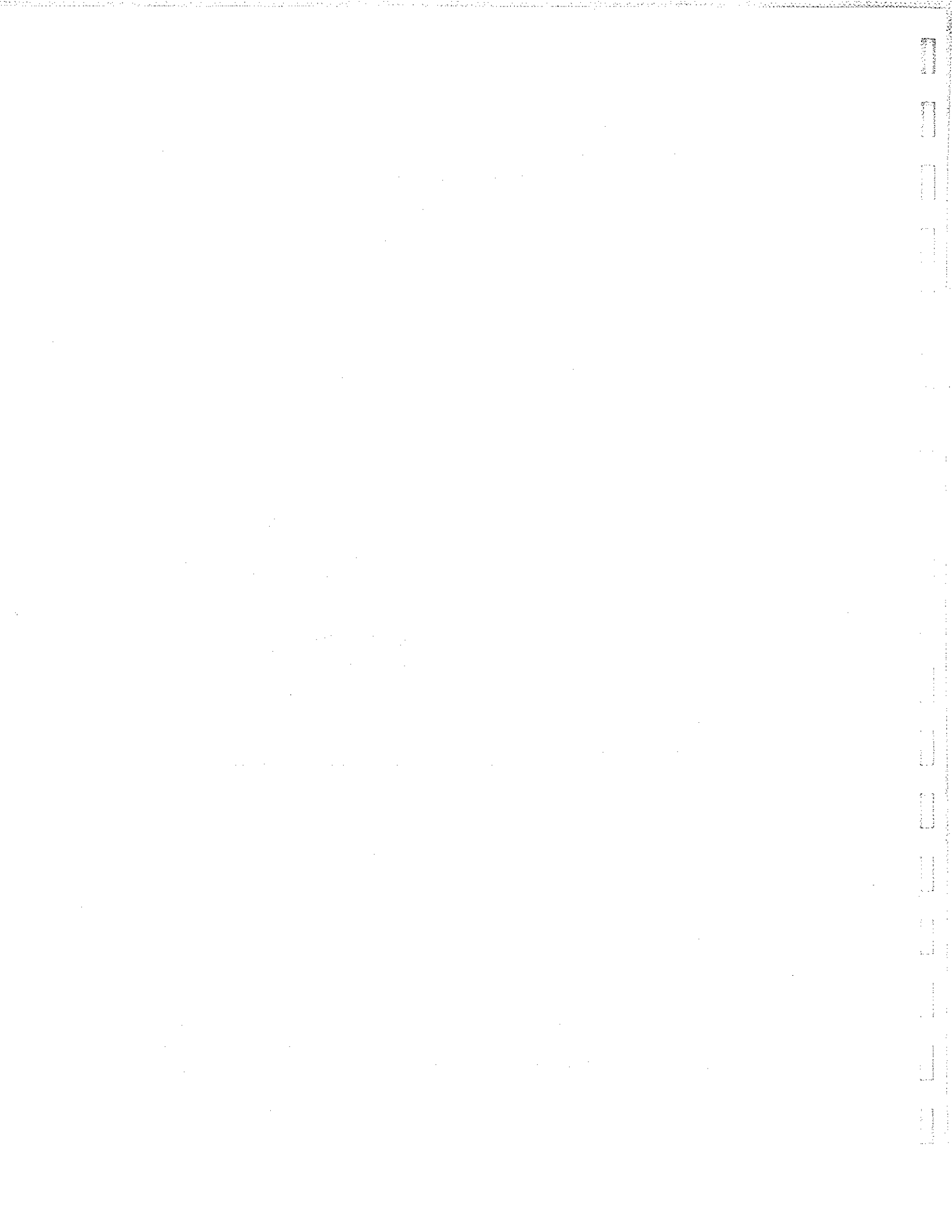
Title

Signature of Village Clerk

Date

Date

In compliance with the specifications, the above-signed offers and agrees, if this Proposal is accepted within **90** calendar days from the date of opening, to furnish any or all of the services upon which prices are quoted, at the price set opposite each item, delivered at the designated point within the time specified above.



Village of Downers Grove



VENDOR W-9 REQUEST FORM

The law requires that we maintain accurate taxpayer identification numbers for all individuals and partnerships to whom we make payments, because we are required to report to the I.R.S all payments of \$600 or more annually. We also follow the I.R.S. recommendation that this information be maintained for all payees including corporations.

Please complete the following substitute W-9 letter to assist us in meeting our I.R.S. reporting requirements. The information below will be used to determine whether we are required to send you a Form 1099. Please respond as soon as possible, as failure to do so will delay our payments.

BUSINESS (PLEASE PRINT OR TYPE):

NAME: SENTINEL TECHNOLOGIES, INC

ADDRESS: 2550 WARRENVILLE ROAD

CITY: DOWNERS GROVE

STATE: ILLINOIS

ZIP: 60515

PHONE: 630-769-4300 **FAX:** 630-769-1399

TAX ID #(TIN): 36-3199182

(If you are supplying a social security number, please give your full name)

REMIT TO ADDRESS (IF DIFFERENT FROM ABOVE):

NAME: _____

ADDRESS: _____

CITY: _____

STATE: _____ **ZIP:** _____

TYPE OF ENTITY (CIRCLE ONE):

Individual

Sole Proprietor

Partnership

Medical

Charitable/Nonprofit

Limited Liability Company –Individual/Sole Proprietor

Limited Liability Company-Partnership

Limited Liability Company-Corporation

Corporation

Government Agency

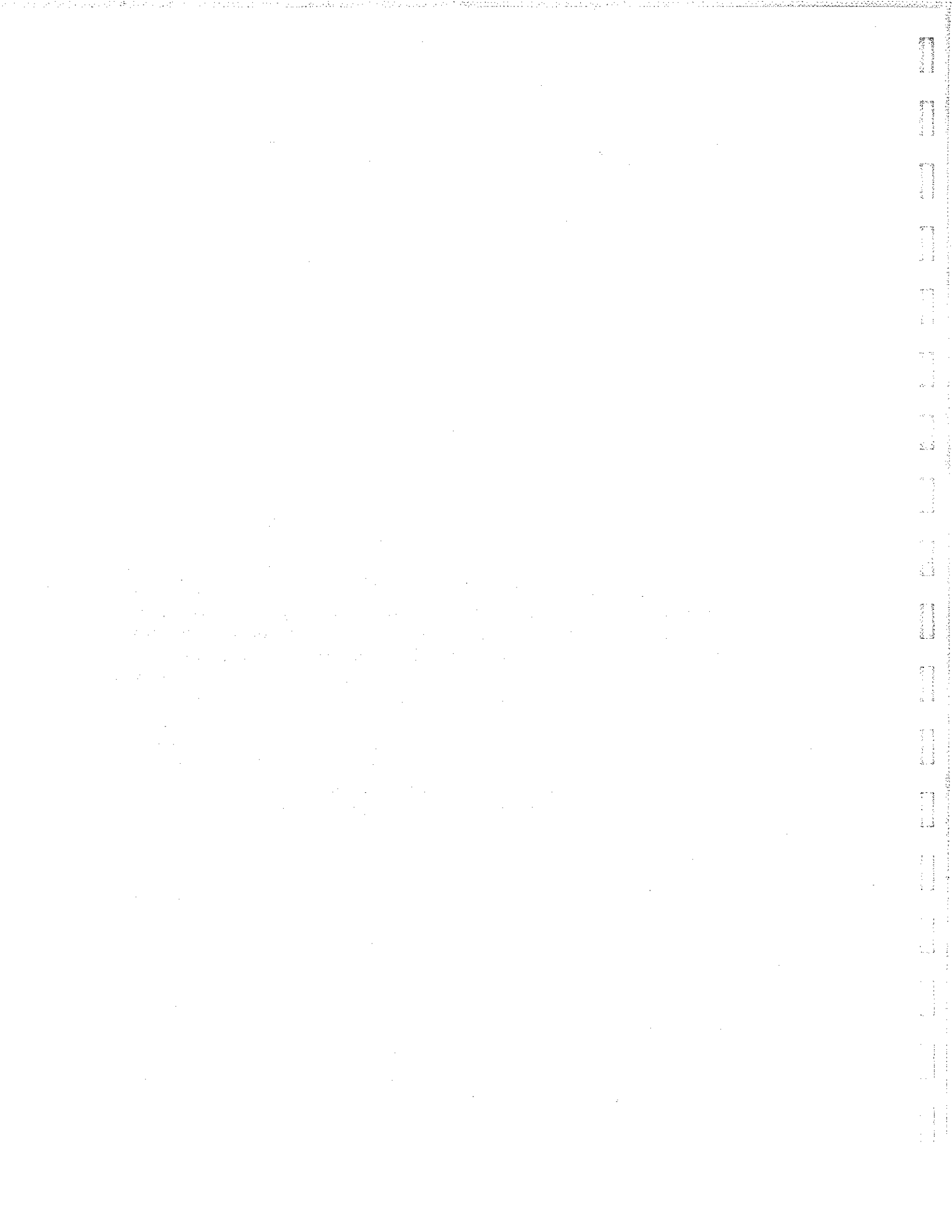
SIGNATURE: _____

DATE: 1-20-11

PROPOSER'S CERTIFICATION (page 1 of 3)

With regard to Network Virtualization, proposer Sentinel Technologies, Inc. hereby certifies
(Name of Project) (Name of Proposer)
the following:

1. Proposer is not barred from bidding this contract as a result of violations of Section 720 ILCS 5/33E-3 (Bid Rigging) or 720 ILCS 5/33E-4 (Bid-Rotating);
2. Proposer certifies that it has a written sexual harassment policy in place and is in full compliance with 775 ILCS §12-105(A)(4);
3. Proposer certifies that not less than the prevailing rate of wages as determined by the Village of Downers Grove, DuPage County or the Illinois Department of Labor shall be paid to all laborers, workers and mechanics performing work for the Village of Downers Grove. All bonds shall include a provision as will guarantee the faithful performance of such prevailing wage clause. Proposer agrees to comply with the Illinois Prevailing Wage Act, 820 ILCS 130/1 *et seq.*, for all work completed. Proposer agrees to pay the prevailing wage and require that all of its subcontractors pay prevailing wage to any laborers, workers or mechanics who perform work pursuant to this contract or related subcontract. Proposer and each subcontractor shall keep or cause to be kept an accurate record of names, occupations and actual wages paid to each laborer, workman and mechanic employed by the Proposer in connection with the contract. This record shall be sent to the Village on a monthly basis along with the invoice and shall be open to inspection at all reasonable hours by any representative of the Village or the Illinois Department of Labor and must be preserved for four (4) years following completion of the contract. Proposer certifies that proposer and any subcontractors working on the project are aware that filing false payroll records is a class B misdemeanor and that the monetary penalties for violations are to be paid pursuant to law by the proposer, contractor and subcontractor. The Village shall not be liable for any underpayments. If applicable: Since this is a contract for a fixed public works project, as defined in 820 ILCS 130/2, Contractor agrees to post at the job site in an easily accessible place, the prevailing wages for each craft or type of worker or mechanic needed to execute the contract or work to be performed.
4. Proposer certifies that it is in full compliance with the Federal Highway Administrative Rules on Controlled Substances and Alcohol Use and Testing, 49 C. F.R. Parts 40 and 382 and that all employee drivers are currently participating in a drug and alcohol testing program pursuant to the Rules.
5. Proposer further certifies that it is not delinquent in the payment of any tax administered by the Department of Revenue, or that Proposer is contesting its liability for the tax delinquency or the amount of a tax delinquency in accordance with the procedures established by the appropriate Revenue Act. Proposer further certifies that if it owes any tax payment(s) to the Department of Revenue, Proposer has entered into an agreement with the Department of



PROPOSER'S CERTIFICATION (page 2 of 3)

Revenue for the payment of all such taxes that are due, and Proposer is in compliance with the agreement.

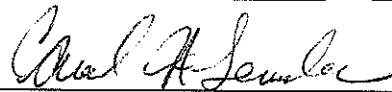
BY: 
Proposer's Authorized Agent

3	6	-	3	1	9	9	1	8	2
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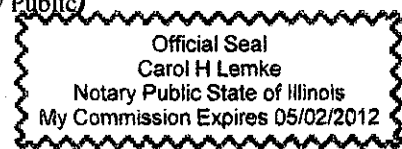
FEDERAL TAXPAYER IDENTIFICATION NUMBER

or _____
Social Security Number

Subscribed and sworn to before me
this 20th day of JAN., 20 11.


Notary Public

(Fill Out Applicable Paragraph Below)



(a) Corporation

The Proposer is a corporation organized and existing under the laws of the State of Illinois, which operates under the Legal name of Sentinel Technologies, Inc., and the full names of its Officers are as follows:

President: Dennis Hoelzer

Secretary: James Emmel

Treasurer: Timothy Hill

and it does have a corporate seal. (In the event that this bid is executed by other than the President, attach hereto a certified copy of that section of Corporate By-Laws or other authorization by the Corporation which permits the person to execute the offer for the corporation.)

(b) Partnership

Signatures and Addresses of All Members of Partnership:

PROPOSER'S CERTIFICATION (page 3 of 3)

The partnership does business under the legal name of: _____
which name is registered with the office of _____ in the state of _____.

(c) Sole Proprietor

The Supplier is a Sole Proprietor whose full name is: _____
and if operating under a trade name, said trade name is: _____
which name is registered with the office of _____ in the state of _____.

5. Are you willing to comply with the Village's preceding insurance requirements within 13 days of the award of the contract?

Insurer's Name Hartford Insurance

Agent CSIG Insurance Agency of Illinois

Street Address 55 W. Monroe Ste. 500

City, State, Zip Code Chicago, IL 60603

Telephone Number 312-429-2250

I/We affirm that the above certifications are true and accurate and that I/we have read and understand them.

Print Name of Company: Sentinel Technologies, Inc.

Print Name and Title of Authorizing Signature: Tim Hill, CFO

Signature: 

Date: 1-20-11

Suspension or Debarment Certificate

Non-Federal entities are prohibited from contracting with or making sub-awards under covered transactions to parties that are suspended or debarred or whose principals are suspended or debarred. Covered transactions include procurement for goods or services equal to or in excess of \$100,000.00 contractors receiving individual awards for \$100,000.00 or more and all sub-recipients must certify that the organization and its principals are not suspended or debarred.

By submitting this offer and signing this certificate, the bidder certifies to the best of its knowledge and belief, that the company and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any federal, state or local governmental entity, department or agency.
2. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction, or convicted of or had a civil judgment against them for a violation of Federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (2) of this certification: and
4. Have not within a three-year period preceding this application/proposal/contract had one or more public transactions (Federal, State or local) terminated for cause or default.

If the bidder is unable to certify to any of the statements in this certification, bidder shall attach an explanation to this certification.

Company Name: Sentinel Technologies, Inc.

Address: 2550 Warrenville Road

City: Downers Grove Zip Code: 60515

Telephone: (630) 769-4300 Fax Number: (630) 769-1399

E-mail Address: trico@sentinel.com

Authorized Company Signature: 

Print Signature Name: Tim Hill Title of Official: CFO

Date: 1-20-11

CAMPAIGN DISCLOSURE CERTIFICATE

Any contractor, proposer, bidder or vendor who responds by submitting a bid or proposal to the Village of Downers Grove shall be required to submit with its bid submission, an executed Campaign Disclosure Certificate, attached hereto.

The Campaign Disclosure Certificate is required pursuant to the Village of Downers Grove Council Policy on Ethical Standards and is applicable to those campaign contributions made to any member of the Village Council.

Said Campaign Disclosure Certificate requires any individual or entity bidding to disclose campaign contributions, as defined in Section 9-1.4 of the Election Code (10 ILCS 5/9-1.4), made to current members of the Village Council within the five (5) year period preceding the date of the bid or proposal release.

By signing the bid documents, contractor/proposer/bidder/vendor agrees to refrain from making any campaign contributions as defined in Section 9-1.4 of the Election Code (10 ILCS 5/9-1.4) to any Village Council member and any challengers seeking to serve as a member of the Downers Grove Village Council.

Under penalty of perjury, I declare:

☒ Bidder/vendor has not contributed to any elected Village position within the last five (5) years.



Signature

Tim Hill

Print Name

☐ Bidder/vendor has contributed a campaign contribution to a current member of the Village Council within the last five (5) years.

Print the following information:

Name of Contributor: _____
(company or individual)

To whom contribution was made: _____

Year contribution made: _____ Amount: \$ _____

Signature

Print Name

VMware vSphere

Enterprise and Enterprise Plus Editions

AT A GLANCE

Designed for organizations that want to virtualize their entire datacenters and deliver IT as a service, VMware vSphere™ Enterprise and Enterprise Plus editions include the full range of vSphere features for transforming datacenters into dramatically simplified cloud computing environments that can deliver the next generation of flexible, reliable IT services.

KEY BENEFITS

- **Efficiency through utilization and automation**—Achieve consolidation ratios of 15:1 or more and improve hardware utilization from 5 percent to 15 percent to as much as 80 percent or more—without sacrificing performance.
- **Dramatically lower IT costs**—Reduce capital expenditures by up to 70 percent and operational expenditures by up to 30 percent to achieve 20 percent to 30 percent lower IT infrastructure costs for each application running on vSphere.
- **Agility with control**—Respond quickly to changing business needs without sacrificing security or control, and deliver zero-touch infrastructure with built-in availability, scalability and performance guarantees for all business-critical applications running on vSphere.
- **Freedom of choice**—Use a common, standards-based platform to leverage existing IT assets alongside next-generation IT services, and enhance vSphere through open APIs with solutions from a global ecosystem of leading technology providers.

What is VMware vSphere?

VMware vSphere is the industry's most complete, scalable and powerful virtualization platform, delivering the infrastructure and application services that organizations need to transform their information technology and deliver IT as a service.

Proven by more than 170,000 customers—including all the Fortune Global 100—and leveraging more than a decade of industry-leading technology and experience, vSphere provides unparalleled agility, control and efficiency while fully preserving customer choice.

How is vSphere Used?

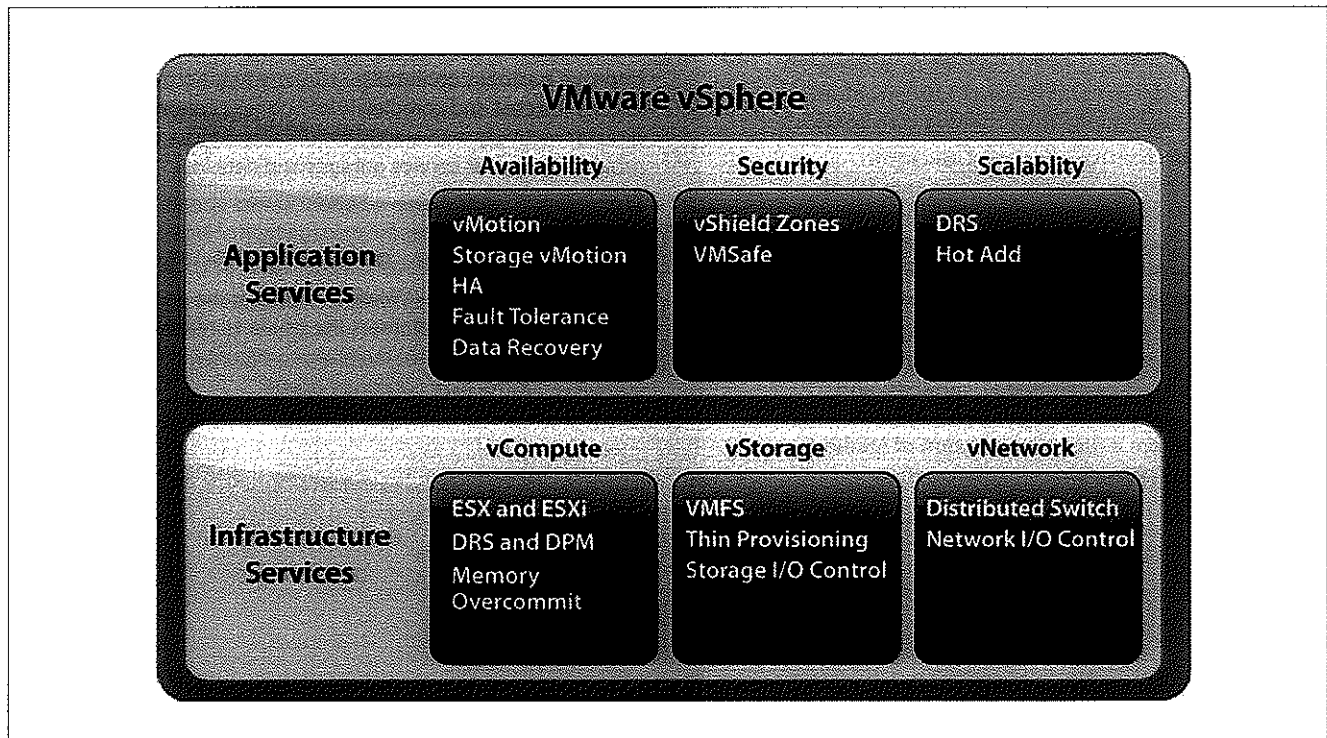
- **Consolidate and optimize IT hardware**—vSphere enables IT organizations to delay costly and disruptive datacenter expansion projects by making it possible to consolidate 15 or more virtual machines on a single physical server without sacrificing performance or throughput.
- **Improve business continuity**—vSphere helps organizations reduce the cost and complexity of business continuity and disaster recovery with always-on IT capabilities and layered protection against service outages and data loss.
- **Streamline IT operations**—vSphere lowers operational overhead and dramatically simplifies the management of large, geographically distributed development, QA and production IT environments.
- **Deliver IT as a service**—VMware vSphere is the only virtualization platform that gives customers the power to realize the benefits of cloud computing while maintaining security, compliance and complete control over corporate assets.

Key Features and Components

Infrastructure Services

- **VMware ESXi™ and ESX® hypervisor architectures** provide a robust, production-proven, high-performance virtualization layer that allows multiple virtual machines to share hardware resources with record-breaking performance that can match and in some cases exceed native throughput.
- **VMware Virtual SMP** enables the use of ultra-powerful virtual machines that possess up to eight virtual CPUs.
- **VMware vStorage Virtual Machine File System (VMFS)** allows virtual machines to access shared storage devices (FibreChannel, iSCSI, etc.), and is a key enabling technology for other vSphere components such as Storage vMotion.
- **VMware vStorage APIs** provide integration with supported third-party data protection, multipathing, and disk array solutions.

- **VMware Distributed Resource Scheduler (DRS)** provides dynamic, hardware-independent load balancing and resource allocation for virtual machines across a cluster, using policy-driven automation to reduce management complexity while enhancing SLAs.
- **VMware Distributed Power Management (DPM)**, included with VMware DRS, automates energy efficiency in VMware DRS clusters by continuously optimizing server power consumption within each cluster.
- **VMware vNetwork Distributed Switch** simplifies and enhances virtual machine networking in vSphere environments, and enables third-party distributed virtual switches such as the Cisco Nexus 1000V to be used in vSphere environments.
- **VMware vStorage Thin Provisioning** provides dynamic allocation of shared storage capacity, allowing IT organizations to implement a tiered storage strategy while reducing storage spending by up to 50 percent.
- **VMware Storage I/O Control** sets storage quality-of-service priorities for guaranteed access to storage resources.
- **Network I/O Control** sets network quality-of-service priorities for guaranteed access to network resources.



VMware vSphere provides a complete virtualization platform with a comprehensive set of application and infrastructure services.

Application Services

- **VMware vMotion™** eliminates the need to schedule application downtime due to scheduled server maintenance through live migration of virtual machines across servers with no disruption to users or loss of service.
- **VMware Storage vMotion** eliminates the need to schedule application downtime due to planned storage maintenance or during storage migrations by enabling live migration of virtual machine disks with no disruption to users.
- **VMware High Availability (HA)** provides cost effective, automated restart within minutes for all applications in the event of hardware or operating system failures.
- **VMware Fault Tolerance (FT)** provides continuous availability, without any data loss or downtime, to any application, in the event of hardware failures.
- **VMware Data Recovery** provides simple, cost effective, agentless backup and recovery for virtual machines, in smaller environments.
- **VMware vShield Zones** simplifies application security by enforcing corporate security policies at the application level in a shared environment, while still maintaining trust and network segmentation of users and sensitive data.
- **VMware VMsafe™ APIs** enable the use of security products that work in conjunction with the virtualization layer to provide higher levels of security to virtual machines than even physical servers.
- **VMware Distributed Resource Scheduler (DRS)** dynamically load balances server resources to deliver the right resource to the right application based on business priority; allowing applications to shrink and grow as needed.
- **Hot add** enables CPU and memory to be added to virtual machines when needed without disruption or downtime.
- **Hot plug** virtual storage and network devices to or from virtual machines without disruption or downtime.
- **Hot extend** of virtual disks allows virtual storage to be added to running virtual machines without disruption or downtime.

Management Services

- **VMware vCenter Agent** allows vSphere hosts to connect to vCenter Server for centralized management of all host and virtual machines.
- **Host profiles** help IT administrators simplify host deployment and compliance by creating virtual machines from configuration templates.
- **Virtual Serial Port Concentrator** allows connections over the network via the serial port concentrator to the serial port console on any server.

- **VMware vCenter Update Manager** automates tracking, patching and updating for vSphere hosts, as well as applications and operating systems running in VMware virtual machines.
- **VMware vCenter Converter** allows IT administrators to rapidly convert physical servers and third-party virtual machines into VMware virtual machines

Customer Success Stories

Campbell Clinic, one of the country's leading centers of orthopedic teaching and practice, uses vSphere to consolidate server hardware, reduce overhead and ensure high availability.

Read the Campbell Clinic success story:

http://www.vmware.com/go/customer_success/campbell_clinic

Financial Technologies India Ltd. (FTIL), owner and operator of 10 international financial exchanges across Africa, India, the Middle East and Southeast Asia, adopted vSphere to maximize its existing real estate and infrastructure, achieving 50:1 consolidation ratios while running SAP and Microsoft applications in production environments.

Read the FTIL success story:

http://www.vmware.com/go/customer_success/ftil

Marshall University, the oldest public institution of higher learning in West Virginia, has leveraged on vSphere to extend the life of an overcrowded datacenter while reducing IT expenditures and accelerating server provisioning time.

Read the Marshall University success story:

http://www.vmware.com/go/customer_success/marshall_u

Southwestern/Great American, an employee-owned corporation founded in 1855, relies on vSphere to run a rock-solid SAP ERP infrastructure.

Read the Southwestern success story:

http://www.vmware.com/go/customer_success/southwestern_great_american

SonicWALL, a leader in the Unified Threat Management security, has virtualized 95 percent of its customer-facing applications with vSphere.

Read the SonicWALL success story:

http://www.vmware.com/go/customer_success/sonicwall

VMware vSphere Editions

VMware vSphere Enterprise

VMware vSphere Enterprise edition includes exclusive capabilities such as VMware Storage vMotion, VMware Distributed Resource Schedule (DRS), VMware Distributed Power Management (DPM), Virtual Serial Port Concentrator, and VMware vStorage APIs for array integration and multipathing.

VMware vSphere Enterprise Plus

vSphere Enterprise Plus includes all the capabilities found in vSphere Enterprise, along with an expanded memory entitlement, eight-way virtual SMP, VMware vNetwork Distributed Switch, VMware Host Profiles, VMware Storage I/O Control, and VMware Network I/O Control.

Additional vSphere Products and Add-ons

VMware vCenter Server—vCenter Server provides unified management for the entire virtual infrastructure and unlocks many key vSphere capabilities such as live migration. vCenter Server can manage thousands of virtual machines across multiple locations and streamlines administration with features such as rapid provisioning and automated policy enforcement.

Note—vCenter Server is a required element of a complete vSphere implementation and is licensed separately on a per-instance basis.

Cisco Nexus 1000V—This pure software network switch integrates with vSphere to deliver virtualization-aware network services and is available for purchase as an add-on product for use with vSphere Enterprise Plus.

Support and Professional Services

VMware offers global Subscription and Support (SnS) services to all VMware vSphere customers. For customers that require additional services, VMware also offers professional services engagements on best practices and getting started with your vSphere deployment, both directly and through an extensive network of certified professionals.

<http://www.vmware.com/services/>

How to Buy

To purchase VMware vSphere, use the online VMware Partner Locator to find an authorized reseller in your area:

<http://partnerlocator.vmware.com/>

You can also visit the online VMware Store to determine which kit or edition of vSphere is right for your organization: http://www.vmware.com/vmwarestore/vsphere_purchaseoptions.html

If you are an existing VMware vSphere or VMware Infrastructure 3 customer, visit the vSphere Upgrade Center to determine the appropriate upgrade path for your organization:

<http://www.vmware.com/products/vsphere/upgrade-center/>

For organizations that are new to virtualization, VMware offers solution bundles called vSphere Acceleration Kits that combine a VMware vSphere edition with VMware vCenter Server and are available for up to 30 percent off the normal list price:

<http://www.vmware.com/vmwarestore/buyvsphere-acceleration-kits.html>

Learn More

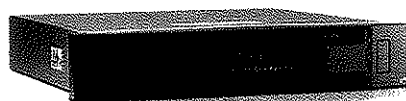
For information or to purchase VMware products, call 877-4-VMWARE (outside of North America dial 650-427-5000), visit www.vmware.com/products, or search online for an authorized reseller. For detailed specifications and systems requirements, refer to the VMware vSphere documentation.



EMC VNXe SERIES UNIFIED STORAGE SYSTEMS



The EMC VNXe3300



The EMC VNXe3100

EMC® VNXe™ series unified storage systems deliver exceptional flexibility for the small-to-medium business user, combining a unique, application-driven management environment with a complete consolidation solution for all IP storage needs.

Specifications

ARCHITECTURE

EMC VNXe utilizes a compact system with built-in disk storage to provide multi-protocol IP connectivity for concurrent NAS and SANs. The VNXe3100™ is equipped with either one or two controllers, while the VNXe3300™ includes two controllers.

VNXe PHYSICAL SPECIFICATIONS

	VNXe3100	VNXe3300
Min/Max Drives	6 to 96	7 to 120
Drive Enclosure Options	12 x 3.5" SAS/NL SAS drives—2U	15 x 3.5" SAS/NL SAS/Flash* drives—3U
CPU/Memory per Controller	1 x Xeon Dual Core/4 GB	1 x Xeon Quad Core/12 GB
Base 1 Gb/s IP Ports per Controller	2	4
Max Flex IO Modules	1	2
RAID Options	10/5/6	10/5/6
Management	LAN 2 x 10/100/1000 Copper GbE	LAN 2 x 10/100/1000 Copper GbE

LIMITS AND SUPPORT

Supported SAN Hosts	128	256
Supported LUNs	Up to 256/128	Up to 512
Maximum LUN Size	2 TB	2 TB
Maximum File System Size	16 TB	16 TB
Total Raw Capacity	192 TB	240 TB

VNXe CONNECTIVITY

The VNXe series provides flexible connectivity options via Flex IO modules for adding Ethernet ports to support additional NAS and iSCSI host connectivity.

FLEX IO MODULE OPTIONS

IO Modules	VNXe3100	VNXe3300
Copper 10/100/1000 Base T 1 Gb/s Module	NAS/iSCSI, 4 ports per module	NAS/iSCSI, 4 ports per module
Optical 10 Gb/s Ethernet	N/A	NAS/iSCSI, 2 ports per module



MAXIMUM CABLE LENGTHS

Maximum cable length CAT5/5E and CAT6 Copper: 100 meters (1 Gb/s)

BACK-END (DISK) CONNECTIVITY

Each storage processor includes one 6 Gb/s x 4 Serial Attached SCSI (SAS) port providing connection to additional disk drive expansion enclosures.

SUPPORTED DISK ADD-ON ENCLOSURES (DAES)

Each member of the VNXe family supports one or more of the following DAEs:

	VNXe3100 Disk Expansion	VNXe3300 Disk Expansion
Drive Types Supported	3.5" SAS, NL-SAS	3.5" SAS, NL-SAS, and 3.5" Flash
Drive Quantity	12	15
Format	Single Depth	Single Depth
Controller Interface	6 Gb/s SAS	6 Gb/s SAS

SUPPORTED DISK DRIVES

Available on:	100 GB	300 GB	600 GB	1 TB NL	2 TB NL
VNXe3300	X	X	X		X
VNXe3100		X	X	X	X
Interface	6.0 Gb/s SAS	6.0 Gb/s SAS	6.0 Gb/s SAS	6.0 Gb/s SAS	6.0 Gb/s SAS
Capacity (RPM)	100 GB (Flash)	300 GB (15,000)	600 GB (15,000)	1 TB (7,200)	2 TB (7,200)
Formatted Capacity (520 Bytes/Sector) 1 MB–1,000,000 Bytes	93.16 GB	272.59 GB	545.195 GB	931.5 GB	1,852 GB
Form Factor	3.5"	3.5"	3.5"	3.5"	3.5"
Height	1.0"	1.0"	1.0"	1.0"	1.0"
Data Buffer	N/A	16 MB	16 MB	32 MB	32 MB
Buffer to/from Media	260 MB/s	97 MB/s	150 MB/s	42–85 MB/s	84 MB/s
SP to/from Buffer	600 MB/s (max)	600 MB/s (max)	600 MB/s (max)	600 MB/s (max)	600 MB/s (max)
Access Time:					
Average Seek	N/A	3.5 ms Read 4.0 ms Write	3.4 ms Read 3.9 ms Write	8.2 ms Read 9.2 ms Write	8.2 ms Read 9.2 ms Write
Rotational Latency	N/A	2.0 ms	2.0 ms	4.17 ms	4.17 ms

VNXe OE PROTOCOLS AND SOFTWARE FACILITIES

VNXe offers support for a wide variety of protocol and advanced features. These features are either included or purchased via various software packages and suites.

PROTOCOLS SUPPORTED

CIFS (SMB 1 and SMB 2), NFSv2 and v3, iSCSI
Network Lock Manager (NLM) v3, v4
Routing Information Protocol (RIP) v1-v2
Simple Network Management Protocol (SNMP)
Network Data Management Protocol (NDMP) v1-v4
Address Resolution Protocol (ARP)
Internet Control Message Protocol (ICMP)
Simple Network Time Protocol (SNTP)
Lightweight Directory Access Protocol (LDAP)

SERVER OPERATING SYSTEM SUPPORT

Microsoft Windows Server 2003
Microsoft Windows Server 2008, Windows Server 2008 R2+
Microsoft Windows 7 and Vista
Microsoft Hyper-V
VMware® ESX®
RedHat Enterprise Linux
Novell Suse Enterprise Linux
Solaris 10 SPARC
VNX for File Core Software Capabilities

VNXe SOFTWARE

VNXe offers support for a variety of advanced features. These features are standard or may be purchased via software packages and suites. More information regarding features, suites, and packages can be found in the VNXe Software Suites data sheet.

EMC Unisphere™ for VNXe—Integrated management and monitoring of all aspects of VNXe systems

- Automated Volume Management (AVM): File system provisioning
- Thin Provisioning: Enables logical sizing and physical provisioning
- VNXe Deduplication and Compression: File-based deduplication with compression

Local Protection Suite—Snapshots for file systems and iSCSI volumes

Remote Protection Suite—Replicate file data over IP for disaster recovery, backup, and/or testing

Application Protection Suite—Application integration and replica management

Security and Compliance Suite—VNXe File-Level Retention—Enterprise

Optional Software	VNXe3100 Suites	VNXe3300 Suites
	Application Protection	NFS Protocol
	Remote Protection	Local Protection
Total Value Pack	Security and Compliance	Application Protection
Total Protection Pack		Remote Protection
		Security and Compliance

CLIENT CONNECTIVITY FACILITIES

File access by NFS, CIFS protocols
Block access by iSCSI
Link Aggregation (IEEE 802.3ad)
Failsafe networking
Virtual LAN (IEEE 802.1q)
Network Status Monitor (NSM) v1
Portmapper v2
Network Information Service (NIS) client
Supports Microsoft DFS as Leaf node or Root Server
Native Windows 2000/20 03/2008 R2 support
LDAP signing for Windows
Microsoft Windows Server 2003 Access-based Enumeration (ABE)

OPTIONAL VMWARE FACILITIES

- VNX Plug-ins for VMware: For provisioning, management, cloning, and file deduplication
- EMC PowerPath®/VE: Path management for iSCSI

VNXe ELECTRICAL SPECIFICATIONS

Requirement	VNXe3100 Processor Enclosure	VNXe3100 Expansion Enclosure	VNXe3300 Processor Enclosure	VNXe3300 Expansion Enclosure
AC Line Voltage	100 to 240 VAC \pm 10%, single-phase, 47 to 63 Hz	100 to 240 VAC \pm 10%, single-phase, 47 to 63 Hz	100 to 240 VAC \pm 10%, single-phase, 47 to 63 Hz	100 to 240 VAC \pm 10%, single-phase, 47 to 63 Hz
AC Line Current	4.0 A max at 100 Vac, 2.0 A max at 200 Vac	2.5 A max at 100 Vac, 1.3 A max at 200 Vac	4.8 A max at 100 Vac, 2.4 A max at 200 Vac	2.8 A max at 100 Vac, 1.4 A max at 200 Vac
Power Consumption	395 VA (380 W) max	250 VA (240 W) max	480 VA (455 W) max	280 VA (235 W) max
Power Factor	0.98 min. at full load, low voltage	0.98 min. at full load, low voltage	0.98 min. at full load, low voltage	0.98 min. at full load, low voltage
Heat Dissipation	1.37 x 106 J/hr, (1,300 Btu/hr) max	8.64 x 105 J/hr, (820 Btu/hr) max	1.64 x 106 J/hr, (1,560 Btu/hr) max	8.46 x 105 J/hr, (800 Btu/hr) max
AC Protection	15 A fuse on each power supply, both phases	15 A fuse on each power supply, both phases	12.5 A fuse on each power supply, both phases	10 A fuse on each power supply, both phases
AC Inlet Type	IEC320-C14 appliance coupler, per power supply	IEC320-C14 appliance coupler, per power supply	IEC320-C14 appliance coupler, per power supply	IEC320-C14 appliance coupler, per power supply
Ride-through Time	30 ms min	30 ms min	30 ms min	30 ms min
Current Sharing	\pm 15% of full load, between power supplies	\pm 15% of full load, between power supplies	\pm 10% of full load, between power supplies	\pm 10% of full load, between power supplies

VNXe PHYSICAL DIMENSIONS (APPROXIMATE)

	VNXe3100 Processor Enclosure	VNXe3100 Expansion Enclosure	VNXe3300 Processor Enclosure	VNXe3300 Expansion Enclosure
Dimension (H/W/L)	3.40 in. x 17.5 in. x 20.0 in./ 8.64 cm x 44.45 cm x 50.8 cm	3.40 in. x 17.5 in. x 20.0 in./ 8.64 cm x 44.45 cm x 50.8 cm	5.25 in. x 17.5 in. x 24.0 in./ 13.3 cm x 44.5 cm x 61.0 cm	5.25 in. x 17.5 in. x 14.00 in./ 13.34 cm x 44.5 cm x 35.56 cm
Weight (max)	60.5 lb/26.4 kg	52.0 lb/23.6 kg	96.4 lb/43.8 kg	72 lb/32.66 kg

OPERATING ENVIRONMENT

Temperature:	50–104 degrees F (10–40 degrees C)
Temperature Gradient:	19 degrees F/hr (10 degrees C/hr)
Relative Humidity:	20% to 80% (non-condensing)
Altitude:	8,000 ft (2,438 m) @ 104 degrees F (40 degrees C) max 10,000 ft (3,048 m) @ 98.6 degrees F (37 degrees C) max

ELECTROMAGNETIC EMISSIONS AND IMMUNITY

FCC Class A EN55022 Class A

CE Mark VCCI Class A (for Japan)

ICES-003 Class A (for Canada) AS/NZS 3548 Class A (for Australia/New Zealand)

EN55024 Immunity, ITE BSMI Class A (for Taiwan)

CONTACT US

To learn more about how EMC products, services, and solutions can help solve your business and IT challenges, contact your local representative or authorized reseller, or visit us at www.EMC.com.

QUALITY AND SAFETY STANDARDS

UL 60950; CSAC 22.2-60950, FN 60950

Manufactured under an ISO 9000-registered quality system

ETSI EN 300 386

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Cisco UCS C200 M2 High-Density Rack-Mount Server

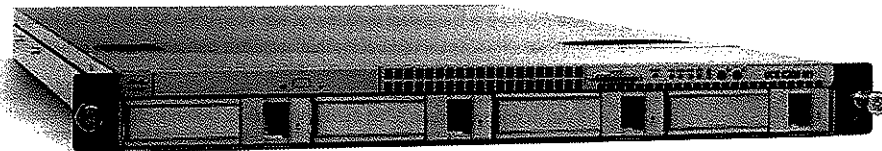
Product Overview

Cisco® UCS C-Series Rack-Mount Servers extend unified computing innovations to an industry-standard form factor to help reduce total cost of ownership (TCO) and increase business agility. Designed to operate both in standalone environments and as part of the Cisco Unified Computing System™¹, the series employs Cisco technology to help customers handle the most challenging workloads. The series incorporates a standards-based unified network fabric, Cisco VN-Link virtualization support, and Cisco Extended Memory Technology. It supports an incremental deployment model and protects customer investments with a future migration path to unified computing.

The Cisco UCS C200 M2 High-Density Rack-Mount Server is a high-density server with balanced compute performance and I/O flexibility (Figure 1). This price-to-performance optimized two-socket, one-rack-unit (1RU) rack-mount server is designed to balance simplicity, performance, and density for web infrastructure and mainstream data center, small-office, and remote-office applications. Its single-rack-unit size makes it useful for service providers offering dedicated or multi-tenant hosting, and its economical price makes it well suited to the appliance market.

Building on the success of the Cisco UCS C200 M1 High-Density Rack-Mount Server, the Cisco UCS C200 M2 server extends the capabilities of the Cisco Unified Computing System with the next generation of Intel processor technology: Intel® Xeon® 5600 series processors. These powerful processors deliver more cores, threads, and cache, all within a similar power envelope, with even faster payback, greater productivity, and better energy efficiency than preceding models. When put into production, Cisco Unified Computing System and Intel Xeon 5600 series processors together offer further reductions in TCO, increased business agility and another big leap forward in data center virtualization.

Figure 1. Cisco UCS C200 M2 Server



Applications

The Cisco UCS C200 M2 server is a high-density general-purpose two-socket server optimized to deliver high performance in a compact, 1RU form factor. Based on Intel Xeon 5600 series processors, the server provides excellent performance and value for workloads including the following:

- Horizontally scaled applications such as web servers in which both performance and density are important
- Application server workloads where multiple processor cores contribute directly to higher performance
- Infrastructure applications including mail and messaging servers, firewalls, file and print servers, and intrusion-detection systems
- Small-office and remote-office applications
- Service provider infrastructure for both shared and dedicated hosting models

¹ Future capability planned to follow the product's first customer shipment (FCS).

Features and Benefits

The Cisco UCS C200 M2 server extends Cisco's product portfolio to meet the needs of customers that choose to deploy rack-mount servers. The server enables organizations to deploy systems incrementally -- using as many or as few servers as needed -- on a schedule that best meets the organization's timing and budget.

Designed to operate both in standalone environments and as part of the Cisco Unified Computing System, the server combines high-capacity disk storage and I/O configurations with Cisco innovations, including a unified network fabric and network-aware Cisco VN-Link technology.

The server brings differentiation and value to what has been a commodity market with products not optimized to meet the needs of virtualized data centers. Available from Cisco and its data center network infrastructure (DCNI) partners, the server advances the rack-mount server market with the features outlined in Table 1.

Table 1. Features and Benefits

Feature	Benefit
10-Gbps unified network fabric	<ul style="list-style-type: none"> • Low-latency, lossless, 10-Gbps Ethernet and industry-standard Fibre Channel over Ethernet (FCoE) fabric • Wire-once deployment model in which changing I/O configurations no longer means installing adapters and recabling racks and switches • Fewer interface cards, cables, and upstream network ports to purchase, power, configure, and maintain
Virtualization optimization	<ul style="list-style-type: none"> • Cisco VN-Link technology, I/O virtualization, and Intel Xeon 5600 series processor features, extending the network directly to virtual machines • Consistent and scalable operational model • Increased security and efficiency with reduced complexity
Unified management* (when integrated into the Cisco Unified Computing System)	<ul style="list-style-type: none"> • Entire solution managed as a single entity with Cisco UCS Manager, improving operational efficiency and flexibility • Service profiles and templates that implement role- and policy-based management, enabling more effective use of skilled server, network, and storage administrators • Automated provisioning and increased business agility, allowing data center managers to provision applications in minutes rather than days
Six-core Intel Xeon 5600 series processors	<ul style="list-style-type: none"> • Intelligent performance that automatically adjusts processor performance to meet application demands, increasing performance when needed and achieving substantial energy savings when not • Automated energy efficiency that reduces energy costs by automatically putting the processor and memory in the lowest available power state while still delivering the performance required • Flexible virtualization technology that optimizes performance for virtualized environments, including processor support for migration and direct I/O • With more cores, threads, and cache in a similar power envelope, the Cisco Unified Computing System and Intel Xeon 5600 series processors together offer further reductions in TCO, increased business agility, and another big leap forward in data center virtualization.
Hot-swappable SAS and SATA drives	<ul style="list-style-type: none"> • Up to 4 front-accessible, hot-swappable, internal 3.5-inch SAS or SATA drives, providing redundancy options and ease of serviceability • Balanced performance and capacity to best meet application needs: <ul style="list-style-type: none"> • 15,000-RPM SAS drives for highest performance • 7200-RPM SAS drive for high capacity and performance • 7200-RPM SATA II drives for high capacity and value
RAID 0, 1, 5, 6, and 10 support	<ul style="list-style-type: none"> • A choice of RAID controllers to provide data protection for up to 4 SAS or SATA drives • Options include built-in RAID 0 and 1 support for SATA drives; RAID 0 and 1 for SAS or SATA drives through a mezzanine card; and RAID 0, 1, 5, 6, and 10 support through a PCIe LSI MegaRAID Controller
Cisco UCS Integrated Management Controller	<ul style="list-style-type: none"> • Web user interface for server management; remote keyboard, video, and mouse (KVM); virtual media; and administration • Virtual media support for remote KVM and CD and DVD drives as if local • Intelligent Platform Management Interface (IPMI) 2.0 support for out-of-band management through third-party enterprise management systems • Command-line interface (CLI) for server management
Fast-memory support	12 DIMM slots supporting up to 96 GB of 1333-MHz memory for optimal performance
Redundant fans and power supplies	Dual-redundant fans and power supplies for enterprise-class reliability and uptime

Feature	Benefit
Support for up to 2 PCIe 2.0 slots	<ul style="list-style-type: none"> Flexibility, increased performance, and compatibility with industry standards PCIe 2.0 slots, which double bandwidth over the previous generation and offer more flexibility while maintaining compatibility with PCIe 1.1 * I/O performance and flexibility with 1 low-profile x8, half-length and 1 full-height x16, half-length slot
Integrated dual-port Gigabit Ethernet	<ul style="list-style-type: none"> Outstanding network I/O performance and increased network efficiency and flexibility Increased network availability when configured in failover configurations
Optical drive	Direct front-panel read/write access to CD and DVD media

Product Specifications

Table 2 lists the specifications for the Cisco UCS C200 M2 server.

Table 2. Product Specifications

Item	Specification
Processors	<ul style="list-style-type: none"> 1 or 2 Intel Xeon Series 5600 processors Choice of processors: Intel Xeon X5670, X5650, L5640, E5640, E5620, or E5506
Memory	<ul style="list-style-type: none"> 12 DIMM slots for up to 96 GB of memory using 8-GB DIMMs Support for DDR3 registered DIMMs Support for DDR3 low-voltage DIMMs Advanced ECC Mirroring option
PCIe slots	<ul style="list-style-type: none"> 2 PCIe Gen 2.0 slots available <ul style="list-style-type: none"> 1 x16 full-height and 1 x8 low-profile slots, both half-length x16 connector on full-height slot and x8 connector on low-profile slot
RAID	
Hard drives	Up to 4 front-accessible, hot-swappable, 3.5-inch SAS or SATA drives
Hard disk options	<ul style="list-style-type: none"> Gen 2 500-GB SATA; 7200 RPM Gen 2 1TB SAS; 7200 RPM 2TB SAS; 7200 RPM, 3.5" HDD Gen 2 300-GB SAS; 15,000 RPM 450-GB SAS; 15,000 RPM
Optical drive	24x CD-R/RW DVD±R/RW read/write optical drive
Integrated graphics	Matrox G200 core embedded into the ServerEngines Pilot-2 Baseboard Management Controller (BMC)
Cisco UCS Integrated Management Controller	<ul style="list-style-type: none"> Integrated ServerEngines Pilot-2 BMC IPMI 2.0 compliant for management and control One 10/100BASE-T out-of-band management interface CLI and WebGUI management tool for automated, lights-out management KVM
Front-panel connector	Ease of access to front-panel video, 2 USB ports, and serial console
Front-panel locator LED	Indicator to help direct administrators to specific servers in large data center environments
Additional rear connectors	Additional interfaces include a DB-15 video port, 2 USB 2.0 ports, and a DB-9 serial port
Physical dimensions (H x W x D)	1RU: 1.7 x 16.9 x 27.8 in. (4.32 x 42.93 x 70.61 cm)
Temperature: Operating	50 to 95°F (10 to 35°C)
Temperature: Nonoperating	-40 to 149°F (-40 to 65°C)
Humidity: Operating	5 to 93% noncondensing
Humidity Nonoperating	5 to 93% noncondensing
Altitude: Operating	0 to 10,000 ft (0 to 3000m); maximum ambient temperature decreases by 1°C per 300m)
Altitude: Nonoperating	40,000 ft (12,000m)

Regulatory Standards

Table 3 lists regulatory standards compliance information.

Table 3. Regulatory Standards Compliance: Safety and EMC

Specification	Description
Safety	<ul style="list-style-type: none"> • UL 60950-1 No. 21CFR1040 • CAN/CSA-C22.2 No. 60950-1 • IRAM IEC60950-1 • CB IEC60950-1 • EN 60950-1 • IEC 60950-1 • GOST IEC60950-1 • SABS/CB IEC6095-1 • CCC*/CB GB4943-1995 • CNS14336 • CB IEC60950-1 • AS/NZS 60950-1 • GB4943
EMC: Emissions	<ul style="list-style-type: none"> • 47CFR Part 15 (CFR 47) Class A • AS/NZS CISPR22 Class A • CISPR2 2 Class A • EN55022 Class A • ICES003 Class A • VCCI Class A • EN61000-3-2 • EN61000-3-3 • KN22 Class A • CNS13438 Class A
EMC: Immunity	<ul style="list-style-type: none"> • EN55024 • CISPR24 • KN 61000-4 Series, KN 24

Part Number Ordering Information

Cisco Unified Computing Services: Cisco C-Series Rack-Mount Servers

Using a unified view of data center resources, Cisco and our industry-leading partners deliver services that accelerate your transition to a Cisco UCS C-Series Rack-Mount Server solution. Cisco Unified Computing Services help you quickly deploy the servers, optimize ongoing operations to better meet your business needs, and migrate to Cisco's unified computing architecture. For more information, visit

<http://www.cisco.com/go/unifiedcomputingservices>.

For More Information

Please visit <http://www.cisco.com/go/unifiedcomputing>.



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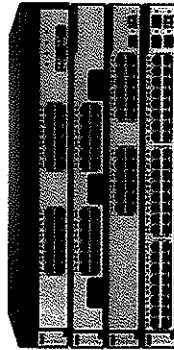


Cisco Catalyst 3750 Series Switching Solutions

At-A-Glance

The Cisco® Catalyst® 3750 Series is an innovative line of multilayer Fast Ethernet and Gigabit Ethernet switches featuring Cisco StackWise™ technology that allows customers to build a unified, highly resilient switching system—one switch at a time.

Figure 1 Cisco Catalyst 3750 Series Switches



Key Features

- Stackable, fixed-configuration switches with Cisco StackWise™ technology and a 32-Gbps interconnect for a unified, resilient system of up to nine switches
- Layer 2-4 switching and intelligent services with dynamic IP routing and IPv6
- Fast Ethernet, Gigabit Ethernet, and 10 Gigabit Ethernet connectivity
- Up to 48 10/100/1000 ports plus 4 Small Form-Factor Pluggable (SFP) ports per stackable switch
- Integrated Power over Ethernet (PoE) (Cisco pre-standard and IEEE 802.3af); up to 24 ports with 15.4 watts (W) or 48 ports with 73W
- Integrated wireless LAN controller supporting up to 200 access points
- AC power supply failure protection with external redundant power supply

Key Benefits

Availability—802.1S/W enables standards-based fault tolerance, load balancing, and rapid recovery; Flexlink provides sub 100-millisecond convergence; Per VLAN

Spanning Tree Plus (PVST+) increases available bandwidth by allowing traffic on redundant link

Cisco StackWise™ Technology—One IP address and one command-line interface (CLI) simplify management; a 32-Gbps resilient architecture speeds convergence; 1:N stack master redundancy and Layer 3 uplink resilience as well as cross-stack Cisco EtherChannel® technology and QoS increase availability; autoconfiguration and Cisco IOS® Software version check and update accelerate deployment; hot add and delete of switches keep the stack running

Power over Ethernet (PoE)—370W PoE simplify IP telephony, wireless, and video surveillance deployments; intelligent power management features provide greater control and help extend the power budget; combined with Fast Ethernet or Gigabit Ethernet maximizes existing infrastructure investment

Layer 3—Advanced routing protocols like Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), Border Gateway Protocol (BGP), Static Routing, and Policy Based Routing (PBR) increase network scale; equal-cost routing as well as multicast routing such as Protocol Independent Multicast (PIM) maximize network resources; Virtual Route Forwarding Lite (VRF-Lite) secures traffic; IPv6 simplifies network addressing and mobile IP while increasing security

QoS—Traffic Shaping smoothes bursty traffic flows without dropping packets; shaped Round Robin helps guarantee bandwidth to mission-critical applications; Scavenger Queueing protects against worms that can overload resources

Management—Cisco Smartports allows fast and easy configuration of advanced Cisco Catalyst intelligent features; express setup facilitates quick and easy setup through a Web-based interface; resource templates help tailor switch resources for the application

Security—Dynamic Host Configuration Protocol (DHCP) snooping allows only trusted ports to relay DHCP messages, eliminating rogue DHCP servers; Network Access Control (NAC) prevents the propagation of costly worms and viruses; Dynamic ARP Inspection and IP Source Guard prevent against man-in-the-middle attacks; 802.1x and Identity-Based Network Services allow only authorized persons on the network; port security prevents MAC address flooding attacks

Wireless—Integrated wireless LAN controller delivers centralized security policies, intrusion protection, RF management, QoS and Layer 3 fast secure roaming for Wireless LANs (WLANs)

Customers

The Cisco Catalyst 3750 Series solutions are ideal for:

- Customers with 250 or more employees who need network equipment to enhance business productivity
- Customers who expect resiliency, security, and scalability
- Customers who want to quickly deploy and easily manage their networks
- Customers who are planning to deploy IP telephony, wireless, or gigabit-to-the-desktop (GTTD)

Software Options

Cisco Catalyst 3750 Series switches can be purchased with the IP Base (formerly called SMI) or IP Services (formerly called EMI) licenses.

- The IP Base license offers advanced QoS, rate-limiting, ACLs, IGMP Snooping, and routing capabilities such as RIP, static routing, and EIGRP Stub
- The IP Services license provides a richer set of enterprise-class features, including advanced hardware-based IP Unicast and IP Multicast routing, PRB, and advanced IP routing protocols



Cisco Catalyst 3750 Series Switching Solutions

At-A-Glance

Ordering Information

Cisco Catalyst 3750 Series Products (without PoE)

Part Number	Description
WS-C3750G-24TS-S1U	24 10/100/1000 ports + 4 SFP ports; IP Base Image; 1 RU
WS-C3750G-24TS-E1U	24 10/100/1000 ports + 4 SFP ports; IP Services Image; 1 RU
WS-C3750G-48TS-S	48 10/100/1000BASE-T ports + 4 SFP ports; IP Base Image and IP Services Image; 1 RU
WS-C3750G-48TS-E	48 10/100/1000T ports + 4 SFP ports; IP Services Image
WS-C3750-24TS-S	24 10/100 ports + 2 SFP ports; IP Base Image
WS-C3750-24TS-E	24 10/100 ports + 2 SFP ports; IP Services Image
WS-C3750-24FS-S	24 100BASE-FX ports + 2 SFP ports; IP Base Image
WS-C3750-48TS-S	48 10/100 ports + 4 SFP ports; IP Base Image
WS-C3750-48TS-E	48 10/100 ports + 4 SFP ports; IP Services Image
WS-C3750G-12S-S	12 SFP ports; IP Base Image
WS-C3750G-12S-E	12 SFP ports; IP Services Image
WS-C3750G-12S-SD	12 SFP ports; IP Base Image; DC power supply

Cisco Catalyst 3750 Series Products (with PoE)

Part Number	Description
WS-C3750G-24PS-S	24 10/100/1000T PoE ports + 4 SFP ports; IP Base Image
WS-C3750G-24PS-E	24 10/100/1000T PoE ports + 4 SFP ports; IP Services Image
WS-C3750G-48PS-S	48 10/100/1000T PoE ports + 4 SFP ports; IP Base Image
WS-C3750G-48PS-E	48 10/100/1000T PoE ports + 4 SFP ports; IP Services Image
WS-C3750-24PS-S	24 10/100 PoE ports + 2 SFP ports; IP Base Image
WS-C3750-24PS-E	24 10/100 PoE ports + 2 SFP ports; IP Services Image
WS-C3750-48PS-S	48 10/100 PoE ports + 4 SFP ports; IP Base Image
WS-C3750-48PS-E	48 10/100 PoE ports + 4 SFP ports; IP Base Image
WS-C3750G-24WS-S25	24 10/100/1000 ports + 2 SFP ports With support for up to 25 access points
WS-C3750G-24WS-S50	24 10/100/1000 ports + 2 SFP ports With support for up to 50 access points

Product Availability

Shipping worldwide, no restrictions

Learn More about Cisco Catalyst 3750 Series
Switches

[http://www.cisco.com/en/US/products/hw/switches/
ps5023/index.html](http://www.cisco.com/en/US/products/hw/switches/ps5023/index.html)

vSphere ready

Veeam Backup & Replication *for VMware*

A groundbreaking disaster recovery solution for VMware Infrastructure 3 and vSphere that combines backup and replication in one product

#1

for VMware

Veeam Backup & Replication

- 2-in-1: Backup and Replication
- Full ESXi support with & without VCB
- File Level Recovery for Windows & Linux

Veeam Backup & Replication™ is the first enterprise-ready solution that combines backup and replication in a single product for fast recovery of your VMware ESX servers. Backup is easy, but recovery can be hard – and that's when the clock is ticking loudest. But with Veeam Backup & Replication, fast recovery is easier than you ever thought possible.

As virtualization increasingly handles mission-critical production workloads, organizations must be assured of effective backup and appropriately fast recovery of the virtual infrastructure. Balancing cost with flexibility is the key: some data requires replication to ensure business continuity, while other data is best backed up and recovered using less expensive hardware and techniques. Veeam Backup & Replication offers both techniques – backup and replication – through one interface, in one product, at one price.

2-in-1: Backup and Replication

With Veeam Backup & Replication, organizations can benefit from a unified solution for both backup and replication to protect virtual machines from both hardware and software failure. Both backup techniques can be optionally used with the VMware Consolidated Backup (VCB) framework, reducing the load on ESX servers and allowing for faster back up. Simply choose the option that is right for each virtual machine, and manage them all with Veeam Backup & Replication.

Full ESXi support with & without VCB

While others promise – Veeam delivers! In addition to the ESXi

"We tried for several months to get a competing product to work, investing a lot of time and money in the process. That product brought our system to a crawl, and backups failed 75% of the time. Our environment is almost 100% virtualized, so we need a backup system we can rely on. We switched to Veeam Backup & Replication, and we're very happy with it. Nothing else in the virtualization space offers comparable functionality and reliability."

— Kim Byram, Director, business and Information Systems,
ISCO Industries, LLC.

backup through VCB that was introduced with version 2.0, version 3.0 now supports ESXi backup without VCB. Veeam Backup & Replication is the only VMware backup solution that lets you backup and restore virtual machines running on ESXi without requiring VCB.

File-level recovery for Windows & Linux

Veeam's fast file-level recovery feature allows you to restore individual files from your image-level backups and replicas in seconds, without having to extract the full VM image to your local drive. And you can extract individual files to the latest state or to a specific point in time. This capability also means you no longer have to back up your data twice in order to have both file-level and image-level recovery readily available. Veeam's file-level recovery supports most major operating and file systems, including Windows, Linux, BSD, Mac and others.

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What's New in version 3.0:

- Support for ESXi
- Linux file-level recovery
- Windows 2008 VSS support
- VM templates backup
- Improved performance

Database-consistent backup

Veeam Backup & Replication leverages Windows Volume Shadow Copy Service (VSS) functionality to ensure consistent backups of the applications within your virtual machines. Unlike other vendors featuring limited VSS support, Veeam provides the most complete implementation of VSS support, equipping you for proper restore of VSS-aware applications (e.g. Active Directory, Exchange) from the created backups. With version 3.0, all VSS-aware Windows OS versions are supported, including Windows 2008.

Reduced storage costs with data de-duplication

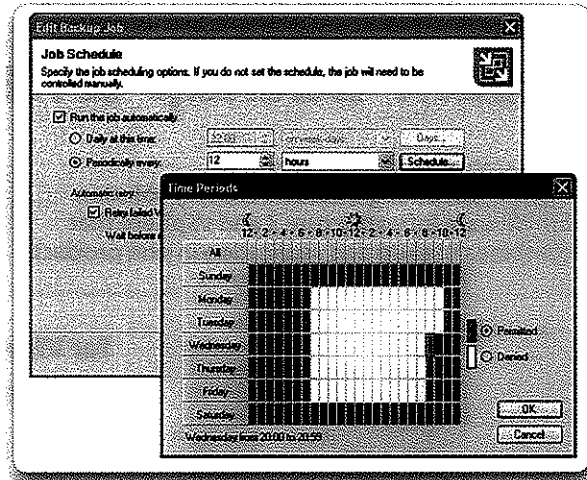
When performing backups of multiple virtual machines, Veeam Backup & Replication de-duplicates similar blocks inside the backup file. De-duplication provides exceptional results when you back up multiple virtual machines created from a single template, or VMs with gigabytes of free space on their pre-allocated logical drives. Data de-duplication reduces disk space requirements for your backups, which results in significant cost savings. Veeam Backup & Replication 3.0 also offers a compatibility mode for storage devices using hardware de-duplication.

Faster backup and restore with synthetic backup

Veeam Backup & Replication uses a synthetic backup technique that allows you to do a full backup only once, and incrementally back up only the changes in all subsequent runs. During each incremental backup, the software rebuilds the last full image to the most recent state, and calculates a reverse increment to store the historical change data. This provides you with a full VM image for quickest restore to the latest state, while reverse increments allow for restoration to any point in time in case of software corruption.

Replica rollback

Backups and replicas produced with Veeam Backup & Replication can be easily restored to a particular point in time. This protects your infrastructure against both hardware and software corruptions – such as in the case of a virus – when software corruption is usually noticed only after a few replication cycles happen.



Integration with VMware Consolidated Backup (VCB)

To achieve the smallest backup window, Veeam Backup & Replication leverages VMware snapshots and optionally integrates with the VCB framework. Using its proprietary "VCB on-the-fly" technology, Veeam Backup & Replication does not require storing VM images on the VCB proxy during backup, allowing for faster backup directly to the target without requiring additional VCB proxy disk space. Veeam Backup & Replication also supports incremental backup through VCB, which is not supported natively.

System Requirements

VMware vSphere 4: ESX(i) 4.0; vCenter 4.0 (optional); VMware Consolidated Backup 1.5 Update 1 (optional).

VMware Infrastructure 3: ESX(i) 3.x; VirtualCenter 2.x (optional); VMware Consolidated Backup version compatible with your ESX Server version (optional).

OS: Windows XP, Windows 2003, Windows Vista, Windows 2008. Both 32-bit and 64-bit OS editions supported.

Hardware: Processor: Pentium IV CPU or faster (multi-core recommended). Memory: 512MB RAM. Disk Space: 100 MB. Network: 100 Mbit/sec or faster preferred.

Ordering information and Support

For pricing, please contact your Veeam Software reseller or send a sales inquiry at <http://www.veeam.com/salesinc.asp>

For technical support please visit <http://www.veeam.com/support.asp>

or email support@veeam.com

and our support representative will contact you promptly.

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