

Assessment Details and Submission Guidelines	
Unit Code	MN503 – T2 2017
Unit Title	Overview of Internetworking
Assessment Type	Individual, written, demonstration
Assessment Title	Network requirement analysis and plan (Assignment 1)
Purpose of the assessment (with ULO Mapping)	<p>Main objectives of this assignment is to enable student to analyse a business case study, develop requirements, select networking devices for the given business case and plan a network design. After successful completion of this assignment, students should be able to:</p> <ol style="list-style-type: none"> a. Analyse and discuss the significance of internetworking for contemporary organisations. b. Explain the role of internetworking to support business and technical goals through planning and design. c. Develop architectural internetworking design for the business, information, technology, and application domains.
Weight	15% of the total assessments
Total Marks	50
Word limit	700 (approximately 3 pages)
Due Date	Week 7 , demonstrate during laboratory class and submit report on Moodle
Submission Guidelines	<ul style="list-style-type: none"> • All work must be submitted on Moodle by the due date along with a completed Assignment Cover Page. • The assignment must be in MS Word format, 1.5 spacing, 11-pt Calibri (Body) font and 2 cm margins on all four sides of your page with appropriate section headings. • Reference sources must be cited in the text of the report, and listed appropriately at the end in a reference list using IEEE referencing style.
Extension	<ul style="list-style-type: none"> • If an extension of time to submit work is required, a Special Consideration Application must be submitted directly to the School's Administration Officer, on academic reception level. You must submit this application within three working days of the assessment due date. Further information is available at: http://www.mit.edu.au/about-mit/institute-publications/policies-procedures-and-guidelines/specialconsiderationdeferment
Academic Misconduct	<ul style="list-style-type: none"> • Academic Misconduct is a serious offence. Depending on the seriousness of the case, penalties can vary from a written warning or zero marks to exclusion from the course or rescinding the degree. Students should make themselves familiar with the full policy and procedure available at: http://www.mit.edu.au/about-mit/institute-publications/policies-procedures-and-guidelines/Plagiarism-Academic-Misconduct-Policy-Procedure. For further information, please refer to the Academic Integrity Section in your Unit Description.

Assignment 1 Specification

Business case study: Choose one of the four business case studies provided in the appendix at page 5. You have to inform your instructor on the choice before start working on the assignment.

Description

For a chosen business case, write a report on the following points:

- a. Analyse and discuss the significance of internetworking for the chosen business case.
- b. Develop hardware requirements for a network with device specifications including series, model and features.
- c. Draw architectural internetworking design for the business in **Netsim**.

Write a report with the following contents

- Project Scope
- Challenges
- Project hardware requirements
 - Name of the network device with manufacturer's name, series, model, features and ports
 - Type of the cables
 - Name of the server, PC with specification such as operating system, RAM, hard disk etc.
- Network Design in Netsim (You **must not** use packet tracer, or any other software!)
- Outcomes / benefits of the proposed design
- Limitations and conclusions.

Marking criteria:

Section to be included in the report	Description of the section	Marks
Project scope	Outline of the report (in 3-4 sentences)	2
Challenges	Write at least 3 appropriate challenges you might face during network setup.	3
Project hardware requirements	<ul style="list-style-type: none"> - Name of the network device with manufacturer's name, series, model, features and ports - Type of the cables - Name of the server, PC with specification such as operating system, RAM, hard disk etc. 	10 2 2
Network Design in Netsim	You must not use packet tracer. Screen capture of Netsim design. Write justification for the selected network design.	10
Outcomes	Write at least 2 outcomes of the network	2
Limitations	Write limitations of the hardware devices used in your design.	2
Conclusions	Write a clear conclusion of the case study.	2
Demonstration	Demonstrate to your instructor during Week-7 lab the detailed network design on Netsim, with justifications explained.	10
Reference style	Follow IEEE reference style	5
	Total	50

Marking Rubrics

Grades	Excellent	Very Good	Good	Satisfactory	Unsatisfactory
Project scope	Concise and specific to the project	Topics are relevant and soundly analysed.	Generally relevant and analysed.	Some relevance and briefly presented.	This is not relevant to the assignment topic.
Challenges	Concise and specific to the project	Topics are relevant and soundly analysed.	Generally relevant and analysed.	Some relevance and briefly presented.	This is not relevant to the assignment topic.
Project hardware requirements	Demonstrated excellent ability to think critically and sourced reference material appropriately	Demonstrated excellent ability to think critically but did not source reference material appropriately	Demonstrated ability to think critically and sourced reference material appropriately	Demonstrated ability to think critically and did not source reference material appropriately	Did not demonstrate ability to think critically and did not source reference material appropriately
Network Design in Netsim	Logic is clear and easy to follow with strong arguments	Consistency logical and convincing	Mostly consistent logical and convincing	Adequate cohesion and conviction	Argument is confused and disjointed
Outcomes	All elements are present and very well integrated.	Components present with good cohesive	Components present and mostly well integrated	Most components present	Proposal lacks structure.
Limitations	All elements are present and very well integrated.	Components present with good cohesive	Components present and mostly well integrated	Most components present	Proposal lacks structure.
Conclusions	All elements are present and very well integrated.	Components present with good cohesive	Components present and mostly well integrated	Most components present	Proposal lacks structure.
Demonstration	Logic is clear and easy to follow with strong arguments	Consistency logical and convincing	Mostly consistent logical and convincing	Adequate cohesion and conviction	Argument is confused and disjointed
IEEE Reference style	Clear styles with excellent source of references.	Clear referencing style	Generally good referencing style	Sometimes clear referencing style	Lacks consistency with many errors

Appendix- a list of case studies (please choose one)

Business case study 1¹

Chock Children's Case study, URL: <http://www.cisco.com/c/dam/en/us/products/collateral/collaboration-endpoints/telepresence-system-ex-series/choc-voc-case-study.pdf>

Business case study 2²

GITAM University case study, URL: <http://www.cisco.com/web/IN/about/asset/gitam.pdf>

Business case study 3³

Cisco Crownnetstart case study, URL:

http://www.cisco.com/c/dam/global/en_au/assets/business/assets/pdfs/crownnetstar_casestudy.pdf

Business case study 4⁴

Cisco Sleepcity case study, URL:

http://www.cisco.com/c/dam/global/en_au/assets/docs/cisco_sleepcity.pdf

¹ <http://www.cisco.com/c/dam/en/us/products/collateral/collaboration-endpoints/telepresence-system-ex-series/choc-voc-case-study.pdf>

² <http://www.cisco.com/web/IN/about/asset/gitam.pdf>

³ http://www.cisco.com/c/dam/global/en_au/assets/business/assets/pdfs/crownnetstar_casestudy.pdf

⁴ http://www.cisco.com/c/dam/global/en_au/assets/docs/cisco_sleepcity.pdf



A holistic approach to pediatric cancer care

Children's Hospital of Orange County (CHOC Children's) spearheaded the Virtual Pediatric Network (VPN) to serve as a hub for collaboration.

“Cisco understands that everything can be connected. It's not an idle claim, it's in their DNA.”

- Dr. Leonard Sender, Medical Director, Hyundai Cancer Institute at CHOC Children's and Division Chief of Oncology, CHOC Children's

Cancer is a complex disease further complicated by the unique needs of children, adolescents, and young adults. No single institution has all the answers.

Challenges

- Simplify access to pediatric cancer experts from multiple organizations
- Bridge the distance between researchers and clinicians
- Eliminate traditional barriers to communication

A child newly diagnosed with leukemia was about to embark on a treatment plan that only had a 40 percent success rate. The boy was too sick to travel, but his family was desperate for a second opinion. They had heard about Dr. Leonard Sender, the division chief of Oncology at CHOC, and scheduled a video call with him using a basic consumer application.

“The ability to see one another was a very powerful moment for me,” says Dr. Sender, who also serves as the medical director for the Hyundai Cancer Institute at CHOC Children's. “Although we were physically separated, I was able to offer the patient another treatment option with a better outcome.”

It was a watershed moment for the renowned physician and researcher, whose vision was to create a research program focused on the genomics of cancer. But first, he needed technology that would bring together the best minds, regardless of their locations.

Case Study | CHOC Children's

Size: 2,500 Employees

Location: Orange, California

Industry: Healthcare





Cisco® collaboration endpoints and conferencing enrich collaboration between dispersed pediatric cancer experts.

Solutions

- Built the Virtual Pediatric Network (VPN) using Cisco TelePresence® solutions
- Connected oncologists and researchers with virtual and collaborative Cisco technologies
- Secure and scalable network foundation with Cisco Nexus® and Catalyst® Switches, and Cisco Integrated Services Routers (ISR)

Bridging the geographic divide

Since 1964, CHOC Children’s has nurtured, advanced, and protected the health and well-being of children through innovative care and state-of-the-art facilities. Dr. Sender followed his vision to secure private funding and a grant from Cisco Corporate Social Responsibility (CSR), and the VPN was born.



Built on Cisco TelePresence and networking solutions, the VPN hub resides at CHOC and connects the hospital with experts at five other clinical sites and one research institute. The VPN consortium aspires to link to 200 facilities currently involved in delivery of care to pediatric cancer patients nationwide.

“Everything we do is about relationships,” says Dr. Sender. “Exchanging ideas at an annual conference is nice, but seeing each other regularly enables us to strengthen professional bonds and build a collective intelligence so that we can provide the best treatment options possible to young cancer patients.”

Instead of driving or flying for hours—missing critical face time with patients—participating organizations can schedule meetings without having to leave their offices.

Transparent engagement

Prior to VPN, clinicians and researchers collaborating on complex cases relied on teleconferencing calls and email to communicate. But the lack of visual cues coupled with dropped calls and lengthy email trails often resulted in treatment delays.

“The norms of communicating are understood with Cisco TelePresence solutions,” says Dr. Sender. “It’s more efficient to have everyone simultaneously engaged on a case during a high-definition video conference. The ability to review patient data in real time, all at once, can have a great impact on the outcome.”





An easy button for increased adoption

The simplicity of using Cisco TelePresence solutions starkly contrasts with the complexity of discussions.

“We have a lot to learn about pediatric cancer, but what we continue to discover can be shared with the simple push of a button,” says Dr. Sender. He believes that practitioners who have been hesitant to try video conferencing will embrace it after they realize how easy it is to use.

“They’re already making several individual phone calls,” says Dr. Sender. “Why not bring everyone together at once over video?”

Witnessing the power of data firsthand

Translational Genomics Research Institute (TGen) is a nonprofit organization located in Phoenix, Arizona, that focuses on optimizing diagnostics and treatments based on genomics. As a VPN member, TGen conducts genetic sequencing and analysis on patient cells, identifying mutations that in turn help physicians determine which drugs to include in a patient’s treatment plan.

TGen was one of the first institutions to collaborate with CHOC, even before VPN, during monthly tumor board meetings. Here, genetic and clinical data is shared and participants—who can include oncologists, radiologists, pathologists, and lab technologists—collaborate on a treatment plan.

“It was challenging to coordinate sharing molecular genetic data with clinical data between two institutions in neighboring states and different time zones for half the year,” says Troy McEachron, Senior Post Doctoral Fellow at TGen. “We couldn’t see who was in the room and actively engaged. If someone stepped out or dropped off the call, we’d have to repeat ourselves to ensure that everyone was getting the data they needed to make a recommendation.”

As part of VPN, TGen researchers and data scientists now present their findings to other VPN members during the monthly tumor board meetings. Clinicians involved in a patient’s care eagerly await the results.

“The passion can easily get lost over the phone, but that doesn’t happen with video,” says McEachron. “Being able to see the joy or the disdain that the results cause enables us to share in those experiences and ultimately inspires us to work even harder.”

A prescription for holistic patient care

Bringing together research and patient care is just the first step in Dr. Sender’s vision. He hopes to connect more data, people, processes, and things to create a holistic approach to pediatric cancer care.

“The ability to interrogate and evaluate a tumor with new technology, coupled with the insight from patient, clinical, and genomics data will provide us with greater understanding of the disease,” says Dr. Sender.





“At the same time, it’s not just about the tumor,” he continues. “Cancer impacts patients and their families emotionally, psychologically, socially, and financially. With Cisco at the heart of our collective intelligence ecosystem, we can connect the previously unconnected for better patient care.”

Results

- Reduced travel time and costs
- Increased access to external clinical and research expertise
- Improved efficiency and collective value for the course of patient treatment

Expanding real-time connections for enhanced knowledge sharing

Dr. Sender plans to use Cisco Spark™ technology for real-time, continuous knowledge sharing. Launched in 2015, the Cisco Spark solution is a secure, virtual meeting space for institutions to manage projects, share ideas and documents, and connect and collaborate instantly through a mobile device or computer.

“The more we connect, the more we rely on Cisco,” he says. “And that’s a good thing.”



Products & Services

<p>Collaboration</p> <ul style="list-style-type: none"> • Cisco TelePresence System • Cisco Collaboration Endpoints 	<p>Routing and Switching</p> <ul style="list-style-type: none"> • Cisco Nexus 9000 • Cisco Catalyst Switches 4500 and 3860 • Cisco ISR
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Indian university deploys campus-wide network infrastructure

Cisco WI-Fi solutions provide wireless coverage, enable easy access to content and facilitate regular/ distance education

EXECUTIVE SUMMARY

- **Customer Name:** GITAM University
- **Industry:** Education
- **Location:** Vishakapatnam, India
- **Number of Employees:** 1370 approximately

BUSINESS CHALLENGE:

- To build a world class scalable infrastructure and offer the best-in-class education
- Budget had to be optimized to create the right-fit deployment
- Partner support in an up-country location like Visakhapatnam was a key concern

NETWORK SOLUTION:

- Single converged IP Network to run internal applications on campus
- Wi-Fi enablement for easy access to content by the students
- Datacenter along with application hosting to facilitate distance education

BUSINESS RESULTS:

- | | |
|----------------------------------------------|------|
| • Cost saving | 80% |
| • Ease of deployment of new technology | 90% |
| • Knowledge /skill-set enhancement for staff | 60% |
| • Competitive advantage | 90% |
| • Better resource utilization | 100% |
| • Improvement in user experience | 90% |

Business Challenge

For over three decades now, GITAM has been committed to excellence in higher education and forayed into diversified disciplines of learning to facilitate that.

GITAM university has three campuses at Visakhapatnam, Hyderabad and Bangalore where Visakhapatnam is the main campus. GITAM offers varied programs blending skill development and value orientation for students, to help them develop a holistic personality. The university also offers several distance learning programs and has an established placement cell in each of its institutes.

Although the university is not located in a top-tier Indian city, the management wanted to ensure that the institution is on par with the rest of the country in terms of technology adoption. In order to facilitate a world-class learning experience GITAM decided to implement a state-of-the-art network infrastructure that would enable deployment of new age technologies like video besides provision of applications developed as SaaS to other affiliated colleges and universities.

Given that the University is located in a non-metro city, normally most investments are devoted to the development of physical infrastructure like buildings and study equipment. However the management at GITAM realized the importance of IT and decided to improve their network infrastructure, deploy new-age technology and enable a better learning environment.



Network Solution

A single converged IP Network to run internal applications on campus along with Wi-Fi enablement to help students easily access content was being sought after by GITAM. A detailed evaluation process of competing platforms was undertaken

before GITAM chose the Cisco solution. Cisco provided an end-to-end solution that met all the requirements of the University. Ease of integration, a strong partner presence in India, coupled with strong support were major criteria for choosing the Cisco solution. Datasoft Comnet Pvt. Ltd. www.datasoftcomnet.com an experienced Premier Certified partner of Cisco was chosen for the deployment based on their Design and Implementation strengths.

The implementation included the setting up of a Campus-wide network with 1 Gigabit fiber on the backbone and more than 300 switches on the Network. Wi-Fi was deployed in the Campus to ease access to the network using 1142 and 1252 APs. Wi-Fi access was secured through ACS integrated with AD, capable of supporting data, voice and video.

“We have achieved considerable cost savings by deploying a Single IP Network across the entire campus. It is now much easier for us to facilitate new services like video, virtualization and cloud computing.”

G. V. Ramana, In-Charge Director, CATS Department.



A 7206 Router was deployed to handle BGP protocol and an ASA 5550 ensured that up to 1Gbps of traffic could flow at wire speed through the firewall. A 10Gbps backbone was deployed to ensure that the central library, digital library and erstwhile e-learning centre at the university worked in a non-blocking mode.

Post implementation, various departments at the University have begun using the core network for their virtualized server requirements and this has helped reduce the costs for new server purchases. It has helped to drive the University towards Cluster computing and Grid computing. Deploying an end-to-end solution also helped GITAM overcome the challenge of finding and retaining skilled manpower to manage complex technology in a remote location, because the solution helped increase dependency and trust in the network.

During the implementation wireless planning needed to be re-adjusted to the requirements of video throughput expected by students. The senior management and the technical team at GITAM worked hand-in-hand with the team from Cisco to complete the project successfully.

Business Results

The implementation has benefitted GITAM in more ways than one. The use of a Single IP Network has resulted in significant cost savings. New Services like video, on-demand learning, signage, virtualization, cloud computing etc. can be rolled out seamlessly using the same converged Network. From a people's perspective, the staff is motivated to work using state-of-art technology in a remote town like Visakhapatnam. The project has also provided GITAM with the first mover advantage to become a Smart, Digital University in India. Post implementation, GITAM can extend services for Hosting/DR and SaaS to other universities and colleges.

With the implemented solution, system availability has improved tremendously —voice, video & data are available anytime, anywhere and to everyone. User experience as well as Intra / Inter office communication has improved and the network has been recognized as an important cog in the wheel of running the University.

“The objective of GITAM is to develop the technical/professional knowledge of the student as well as their intellectual, analytical and practical skills, providing necessary academic and professional tools required for a successful career not only in the relevant field but in other professional contexts, We have achieved considerable cost savings by deploying a single IP Network across the entire campus. It is now much easier for us to facilitate new services like video, virtualization and cloud computing,” said G. V. Ramana, In-Charge Director, CATS Department, GITAM University.

PRODUCT LIST

- ◆ Cisco 6509E Switch with WiSM (wireless controller for 300 APs)
- ◆ Cisco ACS server (for Centralized authentication and authorization)
- ◆ Cisco ASA 5550 Firewall with > 1 Gbps throughput
- ◆ Cisco 7206 router with BGP links
- ◆ 10 Gigabit Switched Backbone.
- ◆ More than 300 nos. 2960 series switches

Next steps

GITAM can now offer additional services such as toll-free Inter-office voice communication, mobility, physical security, location tracking, and wireless communication and assure quality of service and bandwidth for everyday work.

For More Information

To find out more about Cisco's higher education solutions please visit: <http://www.cisco.com/go/education/>

To learn more about Cisco's wireless solutions please visit: <http://www.cisco.com/go/wireless/>

To find out more about GITAM University, please visit: www.gitam.edu



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Australian Entertainment Complex Provides World-Class Guest Experience

Crown Melbourne Limited uses unified communications to differentiate guest rooms and contact centers.

EXECUTIVE SUMMARY	
CROWN MELBOURNE LIMITED	
<ul style="list-style-type: none"> • Hospitality • Melbourne, Australia • 5700 employees 	
CHALLENGE	
<ul style="list-style-type: none"> • Differentiate guest experience • Streamline hotel processes for greater efficiency 	
SOLUTION	
<ul style="list-style-type: none"> • Replaced private branch exchange systems with Unified Communications • Created centralized customer contact center using Unified Contact Center Express • Engaged NetStar Australia, a Cisco Certified Gold Partner, to integrate Unified Communications with third-party hospitality applications 	
RESULTS	
<ul style="list-style-type: none"> • Created unique in-room experience • Enabled guests to easily request services in preferred language • Consolidated three contact center locations to one 	

Challenge

The Crown Entertainment Complex is the premier facility of its type in Melbourne and is recognized as one of the largest and most diverse in the southern hemisphere. Covering the equivalent of two city blocks, Crown’s integrated facilities feature Crown Casino, with 350 tables and 2500 gaming machines; Crown Towers, Crown Promenade, and Crown Metropal (open mid-2010) hotels; the Palladium ballroom; more than 50 restaurants and bars; an extensive collection of international designer boutiques, 14 cinemas, two nightclubs, a live entertainment theatre, and Crown’s Capital Golf Club. The complex attracts more than 16 million visitors every year. Crown Towers was voted Top Hotel, Australia / Pacific at the prestigious 2007 U.S. Condé Nast Traveler Readers’ Choice Awards. Crown Promenade Hotel has won the Australian Tourism Award for best deluxe accommodation.

When planning the AU\$65 million upgrade to Crown Towers in 2009, hotel management sought creative ways to differentiate its rooms. Crown wanted to extend its vision beyond remodeled bathrooms and high-end finishes to the actual guest experience. “In-room technology has become a major differentiator in top hotels,” says Ric Lamb,

Executive General Manager for Management Information Systems, Crown Melbourne. “Crown decided to equip the rooms with the very latest communications technology to create an even more impressive experience and ‘wow’ factor.”

When originally built, each hotel had its own private branch exchange (PBX) system. Crown wanted to replace the PBX systems with a centralized unified communications system that shared the same Cisco® IP network the hotel uses for business applications. Combining voice and data on the same network would enable hotel guests to use in-room IP phones to view information such as weather, restaurant options, flight information, and more. Crown also wanted to offer a high-quality contact center experience to people who called its reservations center or requested services such as housekeeping or room service.

Solution

After evaluating unified communications solutions from three leading vendors, including the existing PBX provider, Crown chose Cisco Unified Communications. “Many of our guests are businesspeople, and they are already comfortable with Cisco Unified IP phones because they use them at work,” says Mr. Lamb. “The hospitality applications that Crown wanted to provide to guests are available on Cisco Unified IP phones. Crown’s experienced IT staff have the skills to manage Cisco equipment. And we like the idea of having a single point of contact for our network and communications system.”

NetStar Australia, a Cisco Gold Certified Partner, deployed Cisco Unified Communications and integrated it with hospitality applications from FCS Computer Systems, a member of the Cisco Developer Technology Program. So far, NetStar has installed more than 2100 Cisco Unified IP phones in Crown Tower guestrooms and Crown administration offices, and will have installed 7500 when the project is complete. During the transition, Cisco Unified Communications is interoperating with Crown's original PBX systems.

Each suite has at least two phones, a Cisco Unified IP Phone 7975 with a color touch screen on the desk, and a Cisco Unified IP Phone 7906 in the bedroom. The largest suites have up to 21 IP phones. "Guests can just touch the screen to request room service, call housekeeping, view local weather or weather in their hometown, check flight schedules, view restaurant and retail store information, and more," says Mr. Lamb. Guests can personalize the phone by saving speed-dial numbers and tagging webpages for quick access. The Crown marketing department worked with NetStar Australia to create attractive menus with a look and feel that reinforces the Crown brand. Phone menus appear in the guest's preferred language, including Chinese.

NetStar Australia also deployed Cisco Unified Contact Center Express for Crown's guest services and reservations contact centers. When agents receive a call, they can see the guest's name and the requested service, such as housekeeping, on their PCs. The same screen displays a staff directory so that agents can just click to transfer the call if needed.

Results

Enhanced Contact Center Experience

In most hotels, calls for extra towels or room service, for example, are routed to different hotel departments. Each department needs enough communications lines and employees to answer all calls during peak calling times. Crown eliminates the guesswork by routing all calls to a centralized contact center with 40 trained agents. Cisco Unified Contact Center Express, which is integrated with the property management software, automatically routes calls to an agent who speaks the language the guest indicated during check in. Contact center managers can generate reports on demand with up-to-the-minute information on performance metrics, including the time needed to meet each customer request.

Streamlined Reservations Process

In the past, Crown's Reservations Department had to continually check telephones, emails, and the fax machine to process new reservation requests. Now, with Cisco Unity[®] Unified Messaging, all types of messages appear in one place, the email inbox, saving time for agents and helping them provide better customer service.

Differentiated Guest Experience

Guests have responded positively to the Cisco Unified IP phones, and are especially enthusiastic about the touch screen menus that provide convenient information about hotel restaurants, retail stores, and other attractions and amenities.

"Crown continues to strive to be the best entertainment complex in Australia, and giving our valued hotel guests the benefit of the latest communications technology right in their rooms helps us achieve that goal," says Ann Peacock, General Manager of Public Relations, Crown Melbourne.

Efficient Business Processes

Cisco Unified Communications is also streamlining the hotel's business processes. For example, when housekeepers finish preparing a room for a new guest, they press buttons on the room phone to indicate that the room is ready. NetStar Australia set up the system so that this information is automatically transferred to the property management system. Immediate updates enable the hotel to make rooms available sooner to guests who arrive early.

Back-office employees like the time-saving features of Cisco Unified Communications, such as the ability to view a list of missed calls, click to call back, and view, playback, and forward voicemail messages from the email inbox.

Simplified IT Infrastructure

Before the upgrade, providing the standard two phones, two televisions, and Internet access in a guest room would have required five cables. “Now voice, television, and Internet access are all provided over the same Cisco IP network, reducing cabling requirements throughout the hotel property,” says Mr. Lamb.

Crown also anticipates reduced operational costs because the hotel no longer needs to use phone technicians to perform telephone extension moves, adds, and changes. Now anyone can move a Cisco Unified IP phone by disconnecting from the old location and connecting it in the new location. This capability is expected to save significant time during set up for conventions.

“Crown prides itself on customer service and value. Cisco has enabled us to offer guests the very latest in technology, both in their rooms and through their contact center experience.”

—Ric Lamb, Executive General Manager, Management Information Systems, Crown Melbourne

Next Steps

In mid-2010, Crown will extend Cisco Unified Communications to the Crown Promenade Hotel and Crown Metropal (open mid-2010). These three hotels will offer guests the highest density of hotel rooms in Australia, and administration offices will share the same servers for IP telephony, the contact center, and unified messaging.

NetStar Australia is currently implementing another application from FCS Communications to further enhance the guest experience. When guests touch a menu option on the Cisco Unified IP phone to request an extra blanket or have their baggage brought to the lobby, for example, the contact center will automatically page the appropriate person. After fulfilling the request, the employee will close the request on an IP phone. If the request is not fulfilled within a defined amount of time, the request will be escalated.

Mr. Lamb concludes, “Crown prides itself on customer service and value. Cisco Unified Communications enables us to offer guests the very latest in technology, both in their rooms and through their contact center experience.”

For More Information

To find out more about Cisco Unified Communications, visit: www.cisco.com/go/unifiedcommunications

To join conversations and share best practices about collaboration, visit: www.cisco.com/go/joinconversation

For More Information on Crown Melbourne Limited

To find out more about Crown Melbourne Limited, visit: www.crowncasino.com

PRODUCT LIST

Network Systems

- Cisco 3845 Integrated Services Routers
- Cisco Catalyst® 6500 and 3750 Series Switches

Unified Communications

- Cisco Unified Communications Manager
- Cisco Unified IP Phones 7975G and 7906 for hotel guest rooms
- Cisco Unified IP Phones 7962G, 7942G, 7911G, and 7906 for administration, contact center, and reservations departments
- Cisco Unified Contact Center Express
- Cisco Unity Unified Messaging
- Cisco Unified Presence
- Cisco Fax Server
- Cisco Email Interaction Manager
- Cisco VG224 and VG248 Voice Gateways

Security

- Cisco 5520 Adaptive Security Appliances



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Sleep City's dream solution

Challenges

- Sleep City was expanding interstate and doubling its retail points of presence – it needed a new communication system that would be simple to deploy and cost-effective to scale.
- Access to Sleep City's server, particularly from remote stores, was unreliable and slow, with dial-up dropouts damaging customer service at the point of sale.
- Sleep City wanted to introduce in-store email to curtail expensive faxing and improve communication and customer service.

Cisco® Intelligent Retail Network solution

- Cisco 2600 Series routers
- Cisco CallManager software
- Cisco Unity® Unified Messaging
- Cisco 7960G Unified IP Phones
- Cisco IP Conference Stations 7935

Benefits

- The new end-to-end IP infrastructure is a flexible foundation for all voice and data communications, enabling Sleep City to double its points of presence with only a 10% increase in communication costs.
- Stores have much faster and more reliable access to Sleep City's server for point-of-sale and inventory data services, dramatically improving customer service.
- Email and low-cost IP phone calls have improved employee responsiveness and customer satisfaction while reducing fax costs by approximately 60%.
- Simple, centralised management of the entire communications system reduces user downtime and the need for IT personnel to travel to remote sites to resolve issues.
- The IP infrastructure is infinitely scalable, cost-effective to deploy and simple to configure for new users and locations, supporting Sleep City's ongoing growth.
- Sleep City can now maximise the value of its investment by integrating new retail services and solutions into its standardised IP infrastructure to further improve communications, productivity and security. These include video surveillance, wireless warehouse management and an intranet.

Australian bedding retailer Sleep City joins the growing ranks of companies worldwide that are discovering the benefits of IP communications to improve customer service, streamline operations and lower the cost of doing business.

With plans to double its Australian retail presence, Sleep City was ready to move on from dial-up PSTN for information networking, and wanted a new phone system that would be simple to deploy and cost-effective to scale. At the same time it was looking for ways to improve customer service and inventory management by deploying Radio Frequency Identification (RFID) tagging to track stock movement in real time.

Director of IT Robert Howard realised that reliable, high quality inter-store communications would be central to success. After careful research, he selected a Cisco IP infrastructure. This provided the innovation, cost savings and scalability Sleep City was looking for to grow the business.

Robert says, "My research identified an immediate monthly saving from IP telephony that would multiply across our growing retail base to provide a large financial benefit over the longer term." And he was proved correct.

Bedding down an infrastructure for growth

"Sleep City has doubled its presence over three years to more than 70 stores nationally with only a 10% increase in communications costs," says Robert Howard.

The company achieved this by deploying a Cisco® Intelligent Retail Network for all voice and data communications, enabling toll-free phone calls between locations. And the system is infinitely scalable, making it cost-effective to accommodate new stores and staff without the need to invest in or upgrade technology.





“Sleep City has doubled its presence over three years to more than 70 stores nationally with only a 10% increase in communications costs.”

Robert Howard, Director of IT, Sleep City

Improving customer service

A more reliable infrastructure has also brought immediate benefits to Sleep City stores, eliminating frequent dial-up dropouts and speeding up access to point-of-sale and inventory data services.

Robert says: “Now server access is instantaneous instead of laborious. Our remote sites particularly have experienced vast improvements in speed. Staff can put orders into the system, quickly check stock or retrieve it from other sites around the country, and that means better customer service.”

Reducing downtime with simpler management

The system is easier and more cost-effective to manage, because all store locations can be simply configured from headquarters via the Wide Area Network (WAN). This reduces user downtime and the need for IT personnel to travel to remote sites to resolve issues.

Working smarter

The new system has dramatically changed the way Sleep City employees communicate between stores, making them much more productive and responsive – and that has led to improved customer satisfaction.

Sleep City previously relied heavily on faxing information. Customer-related email came via head office as the stores did not have their own email addresses. Now Sleep City has introduced email addresses for all stores, slashing fax costs by around 60% and enabling customers to directly contact their local stores for faster service. This also provides an electronic record of communications.

And when employees need to discuss something with a team member in another store, they send an email or pick up the phone – without worrying about call costs.

Employees gave the new IP telephone system the thumbs up, according to Robert: “Our receptionists like the ‘point and click’ and ‘drag and drop’ features – it’s very easy to follow.”

How it works

Designed to meet the needs of today’s demanding retail environment, Sleep City’s Cisco Intelligent Retail Network enables service delivery to a broad range of devices and applications. It features high-performance Cisco 2600 Series routers with built-in security and fail-safe measures protecting Sleep City’s data and business around the clock. Cisco CallManager efficiently processes network traffic for excellent voice quality and application performance, with voicemail provided by Cisco’s powerful Unity® Unified Messaging.

SLEEP CITY

"...an unrivalled combination of industry expertise and superior technology capabilities."

Robert Howard, Director of IT, Sleep City

The integrated address book, intuitive navigation and hands-free and headset options of Cisco's 7960G IP phones simplify communication. Calling another store, managing messages and returning customer calls are all as easy as pressing a button.

And doing business across Sleep City's expanded store base is a whole lot easier with in-the-same-room voice quality teleconferencing using the Cisco 7935 IP Conference Station.

Reaping return on investment

Sleep City's new Cisco Intelligent Retail Network is a flexible foundation for all voice and data communications, so the store can progressively integrate new productivity-enhancing technologies and extend new retail services to improve competitiveness.

"When I looked at an IP infrastructure I believed it was important to do something that was right at the leading edge," Robert explains. "We didn't want to buy technology that was going to be old as soon as it was installed. So the advanced capability of the Cisco infrastructure made it very attractive to us."

In February 2006 the company opened a brand new headquarters housing more than 300 administrative, distribution and manufacturing employees. At this site, Sleep City is installing IP video surveillance, enabling managers to check on the facility from any location via the Internet and improving security at a fraction of the cost of CCTV.

Next a Cisco wireless warehouse management system will be introduced with handheld scanners for more efficient inventory management. In future, RFID technology will be used to track stock in real time.

And communication across the growing organisation will be further improved with the launch later this year of a staff intranet. Robert says, "Our employees will be able to download internal forms, such as timesheets and service reports, and shoot them straight to the appropriate person via email."

All these innovations can be easily accommodated on Sleep City's converged services network to further improve return on investment.

Cisco: the right choice

"We chose Cisco because it offered an unrivalled combination of industry expertise and superior technology capabilities," Robert sums up. "And more and more, as we look at expanding our capabilities, we're seeing the benefits of having a standardised platform with a single vendor we can trust. Cisco supports many partners, and that gives us a lot of scope for the future."

"Now server access is instantaneous instead of laborious. Our remote sites particularly have experienced vast improvements in speed. Staff can put orders into the system, check stock or retrieve it from other sites around the country far more quickly, and that means better customer service."

Robert Howard, Director of IT, Sleep City



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