Best Practices for IP Deployment in a Multi-vendor environment

6 ways to maximise your success

The shift to IP Telephony is on and gaining momentum. The results are obvious: substantially lower costs, higher productivity, greater enterprise efficiency and agility, and enhanced customer satisfaction and retention. But fully realising the many benefits of IP Telephony - particularly in multi-vendor environments - takes careful planning, collaboration and oversight every step of the way.

Gain from lessons learned by an IP Telphony leader: NSC

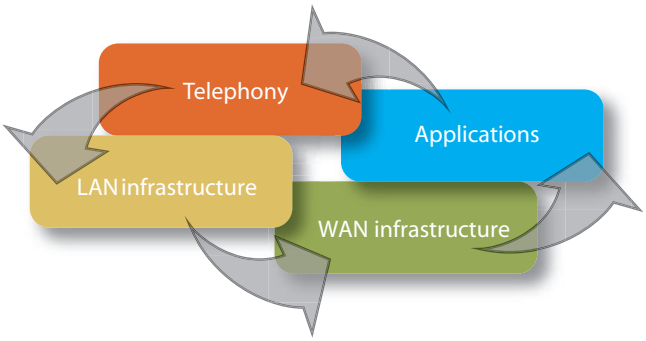
As a leading Australian IP Telephony consulting and solutions partner, NSC delivers business critical applications to meet business goals. NSC has taken public and private sector organisations throughout Australia to the world of converged voice and data with the design, implementation, management and maintenance of highly sophisticated communications technology.

NSC is a tier one Avaya partner. With confidence in and knowledge of the extensive interoperability testing undertaken at Avaya Labs, NSC ensures its customers are receiving secure and reliable IP telephony solutions - that can be layered on top of any existing network.

NSC invites you to take advantage of the lessons learned before you embark on your deployment.

Tip #1: Collaborate

Your IP Telephony deployment will deliver on your goals faster and more efficiently when your primary technology stakeholders collaborate with one another - anticipating and resolving key issues throughout the deployment circle. In most enterprises, these stakeholders have responsibility for the following technology areas:



Collaboration among technology stakeholders is a key to IP Telephony success.

- **Address top IP Telephony deployment issues.** Touching all of these technology areas are vital IP Telephony issues that directly impact the overall success of a multi-vendor deployment and include:

  — Performance and optimisation

  — Security

  — Reliability and availability

  — Management

Members of each IT team should actively address how these issues affect their particular needs, concerns, and objectives.

Tip #2: Assess

Assessments provide the information you need to determine where you are today, and what it will take to make IP Telephony a reality for your business. They can cover such performance issues as packet loss, delay, jitter, availability, network infrastructure, Quality of Service, and Service Level Agreements.

- **Ask the right questions.** When it comes to planning your IP Telephony network, assessments can help you ask the right questions:

  — How much do you plan to grow?

  — What multi-vendor communications applications will you need to accommodate, now and in the future?

  — How much bandwidth will you need to implement Voice over IP?

  — What about throughput for your wireless users?

  — How can you know for sure that your network is ready for convergence?

  — Should you start small and add IP telephony capabilities incrementally?

  — Should you consider Session Initiation Protocol (SIP)? How might its advantages for instant messaging, presence notification, and video applications help you?

  — Will you require voice encryption?

  — How will you manage your IP Telephony platform?

Tip #3: Agree

When it comes to IP Telephony, Quality of Service (QoS) can mean different things to different users. For best results, it's critical for your technology stakeholders to reach agreement early on the precise performance and optimisation assumptions that suit your business.

- **Define a QoS policy up front, not after deployment.** A defined QoS policy allows you to build up to fixed targets and greatly reduce potential conflicts down the road.

- **Define Service Level Agreements (SLAs) before–not after–a failure.** To maximise the effectiveness of your network, SLAs should be the foundation for all optimisation goals, and this requires you to:

  — Understand all existing SLAs.

  — Incorporate a spectrum of failure scenarios into your agreement process.

  — Define appropriate SLAs for IP Telephony that address those scenarios, as well as the needs of your key technology stakeholders.

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Tip #4: Anticipate.

A common trait of secure IP Telephony platforms is that security stems from design, not implementation. Converged voice and data networks can introduce new security challenges, such as:

- Eavesdropping of unencrypted voice conversations
- Unauthorised or unprotected modem attacks
- Denial of service attacks
- Computer viruses
- Hacking/data theft
- Toll fraud
- Firewall, Network Address Translation (NAT), and VPN issues
- **Pave the way for security.** Here are some additional considerations to help you respond to these and other security issues:
  - **Begin with assessments.** Cover such areas as external and internal threats, access and security policy issues, and LAN and wireless LAN weak points.
  - **Include all technology stakeholders.** Include all IT teams and encompass corporate standards requirements.
  - **Remember the security trinity.** Incorporate prevention, detection, and response in your network design.
  - **Establish ownership early.** Designate personnel with security responsibility at the start, so they can provide oversight throughout the deployment cycle.

Tip #5: Duplicate

Because a problem that would merely slow e-mail can cripple voice applications in an IP Telephony network, you need to build in reliability and availability from the outset.

- **Think in duplicates.** You can minimise the impact of network disruptions and unforeseen events through duplication and redundancy.
  - Duplicate network paths—multiple service providers, WAN access points and closet switches.
  - Duplicate application servers that can accommodate common protocols such as Dynamic Host Configuration Protocol (DHCP), Trivial File Transfer Protocol (TFTP), and Domain Name System (DNS).
  - Duplicate IP interfaces so that, in the event of a connection failure, an IP endpoint can be automatically redirected to another available interface.
- **Agree on availability goals for critical network components.** Every link should be scrutinised, every server analysed, every firewall and access point understood.
- **Make redundancy assumptions *before* you deploy.** IT teams should reach agreement on redundancy assumptions prior to deployment.

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Tip #6: Take Control

Management is a key and often overlooked ingredient to ongoing success; make it integral to your deployment cycle.

- **Assign responsibility for *integrated* system management.** The integrated nature of voice and data networks requires an integrated approach to management. Potential problems are more effectively resolved when management responsibility is clearly designated up front.
- **Use an integrated tool set.** Tools should incorporate software specifically designed for IP Telephony management in multi-vendor environments, encompass corporate network management, and integrate with your people, processes, and technology.
- **Prepare for integrated operations.** After much hard work and planning, your IP Telephony system is up and running. Now what? Your strategy for handling network issues after you flip the switch will define your success - or mediocrity.

Putting it all together: Real Australian NSC Scenarios

1) Situation: A national university in Canberra wanting to enrich its communications infrastructure with technology of an international standing and quality.

Goals:

- Converge data, voice and video services on to a common IP fabric.
- Deploy new voice service as part of an Integrated Communications Network (ICN).
- Provide additional telephony functionality and services on campus.
- Integrate a solution scalable for up to 15,000 end points over the life of the equipment.

Challenges:

- Find a superior system to the old PABX network.
- Satisfy a standard set of voice services for all staff and students.

Solution:

- Replace obsolete digital handsets of the old PABX with 1,500 IP handsets – this has since grown to 4,000 with the object of having an IP handset for each staff member and post-doctoral student.
- As additional IP phones are rolled out, analogue gateway assets have become available for redeployment to student accommodation.

Results:

- Flexible solution for the future - The overall size of the university's IP Telephony system is some 10,000 end points, scalable to 15,000. This makes the system one of the largest in the Southern Hemisphere, which can cater for any future growth.
- Extensive accessibility - 130 university buildings in Canberra and three remote campuses are supported by the IP telephony infrastructure, allowing all of the University's 3,200 staff and 12,000 students varying levels of access to the ICN.
- Effective communication - A single network management and support service delivering 99.999% availability to the core network and voice servers.
- Financial benefits – Structured cabling for new and refurbished buildings provides a saving of over 50% of the cost of traditional infrastructure.

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2) Situation: A local Brisbane council striving to enhance customer service and internal efficiency.

Goals:
- Reorganise administrative infrastructure to provide a more efficiently run council with better overall productivity.
- Render a customer centric organisation to enhance community values and standards.
- Implement a technologically advanced communications system.
- Maximise network potential.
- Provide resourceful switch systems and maximum mobility.

Solution:
- Design a system that aligns the operation and performance of the new system with the overall objectives of the Council.
- Upgrade existing PABX by installing a second set of processors, advancing software to Avaya MultiVantage TM 1.0 and converting it from DC to AC power supply.
- Implementation of Avaya IP Telephony to operate Service Centre that tracks, monitors and checks all calls for prompt response and overall quality.

Results:
- Incoming calls to the Council are answered by a team of ten professional Service Centre staff who access a new A-Z guide outlining all Council services over an intranet.
- Improved relations with customers due to enhanced organisational efficiency at the council.

3) Situation: A leading provider of business and financial management software needing to network its Melbourne Head Office with other offices in the Asia Pacific region.

Goals:
- To deploy a system capable of routing customer calls throughout the network during peak business times.
- Cost-effective improvements to voice and data convergence, call centre services and advanced applications across the regional network.

Challenges:
- To service regions globally with seasonal peaks occurring at different times.
- To meet the needs of a large number of customers anxious to comply with local tax regulations under rigid deadlines.

Solutions:
- Migrate from legacy Time Division Multiplexing (TDM) technology to an Avaya MultiVantage solution using VoIP.
- Deploy the Avaya S8700 Media Server as a central point of control to handle seasonal peaks.
- Employ an Interactive Voice Response (IVR) system to improve customer call management through call identification and allocation.

Results:
- Centralised branch office with best-of-class communications technology in Asia Pacific company offices.
- An ability to route customer calls throughout the network during peak business times so that large numbers of customers can comply with local tax regulations under rigid deadlines.
- Lowered ongoing overheads.
- Automated and enhanced customer service.

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NSC chooses to work with Avaya as its technology provider, and is Avaya's only national Australian tier 1 partner

Leadership in interoperability testing

At its interoperability test labs around the world, Avaya invests millions of dollars a year to determine how its equipment works with vendor equipment.

- The Avaya **Solution and Interoperability Test Lab** performs hundreds of tests annually to ensure the effectiveness of Avaya equipment in customer environments.
- Tested **vendors** include Cisco, Nortel Networks, Extreme Networks, Foundry Networks, Enterasys Networks, 3Com, Lucent Technologies, HP, and many more.
- The **Avaya Developer***Connection* **Program** includes 177 vendors developing applications for Avaya products and jointly testing over 300 solutions.
- **Interoperability information you can use** - application notes with detailed instructions on how to configure Avaya and other vendors' products to work together. For more information, please see: **www1.avaya.com/enterprise/resourcelibrary/applicationnotes**

Maximise your benefits from IP Telephony

IP Telephony offers tremendous potential for your business. The guidelines presented here are just the beginning. Ask your NSC Account Executive or contact our Head Office for details on how NSC can help you fashion the ideal IP Telephony solution for your needs.

www.nsc.net.au

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