

Managing Multi-Vendor IP Telephony Environments with Prognosis

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This white paper from Integrated Research discusses how managing multi-vendor IP telephony environments with Prognosis creates synergies and efficiencies that reduce management costs.

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White Paper on a Page™

Managing large, multi-vendor and geographically dispersed IP telephony environments is a challenge faced by an increasing number of businesses. Multi-vendor implementations happen for many reasons; enterprises deploy vendor-specific applications, call centers require distinct customer account features, service providers need to manage clients with different VoIP platforms and as the result of M&A activity.

As each VoIP platform comes with its own client interfaces, configuration and administration tools, terminology and user skill requirements, managing hybrid environments inevitably means more complexity. The good news is that you can manage multiple vendors, technologies and versions with unified multi-vendor VoIP monitoring.

This is an investment which delivers plenty of benefits, including:

Managing unrelated IP telephony systems efficiently

The best way to create efficiency is through familiarity with one product and one user interface. This means that you don't have to install and load multiple software clients or swap from one set of terminology to another, learn shortcuts and acquire deep product knowledge for multiple products. You can leverage the knowledge you gain managing one platform to manage others and improve the reach and productivity of support staff.

Multi-tenancy monitoring for service providers

This brings specific benefits for service providers who can manage multiple platforms and multiple customers from a single user interface. A secure connection to each customer ensures that monitored environments are kept separate from each other.

Minimizing VoIP management costs

Multi-vendor VoIP management allows you to monitor and maintain multiple versions, technologies, platforms and sites with fewer, less specialized personnel. This reduces the time and expense involved in training staff, as well as purchasing and maintaining multiple vendor-specific management tools.

Monitoring and alerting in real time across-platforms

Monitoring multiple vendor platforms for voice quality, performance and availability can scale across the VoIP ecosystem of each platform. It also offers flexible management choices and if required, enables management functionality beyond the data center.

Reporting

Reports incorporating operational, business and service level statistics provide insight to the availability, performance, utilization and voice quality of each VoIP platform.

Correlating VoIP ecosystem performance

Multiple-vendor VoIP management with integrated network diagnostic capabilities helps you correlate, diagnose and resolve network performance and availability issues that affect the quality of your VoIP service.

Flexible SLAs

Integrated multi-vendor VoIP management allows you to design, deliver and validate operational and service level agreements for stakeholders and customers. An extensive selection of key performance indicators for each platform is automatically included in reports incorporating voice quality, availability and performance of PBX hardware, calls and trunks.

For more www.prognosis.com/voip-monitoring

Introduction

Are you facing the challenge of managing large, multi-vendor and geographically dispersed IP telephony environments? If you are, the good news is you're in excellent company! There are many enterprises and service providers who need to manage hybrid environments, and despite the inherent complexities, there are many ways the management mix can work for you, not against you.

Take for example how unified multi-vendor VoIP management extends the reach and productivity of your support staff and processes. Prognosis discovers, classifies and visualizes hybrid VoIP networks in real-time. It gives you an end-to-end view of the entire VoIP ecosystem so you can correlate, diagnose and resolve performance issues that can affect the quality and consistency of your VoIP service.

Unified management through a single pane of glass reduces resource overhead and training requirements and you'll gain a consistent and consolidated view of performance, usage and capacity across the entire IP telephony ecosystem.

Of course there are many other benefits. You can:

- Extend the reach and productivity of your support staff.
- Monitor and maintain multiple versions, technologies, platforms and sites with fewer, less specialized personnel.
- Reduce the time and expense involved in training VoIP operations' staff to use different management solutions.
- Design, measure, manage and report on consistent SLAs across all monitored platforms.
- Eliminate the need to purchase and maintain multiple vendor-specific management tools – and the associated hard and soft costs.
- Mitigate the cost of internal upheaval brought about by mergers and acquisitions, organizational restructures or by new business processes.

As each VoIP platform comes with its own configuration and management tools, interfaces, terminology and user skill requirements, you're probably wondering how you're going to manage this additional complexity. Ideally you'd like to do this with your existing staff, processes and skills, but you probably don't have every one of these elements ready to go right now in your support team!

You can however, dispense with multiple management tools and use a single, consolidated VoIP management solution. This will enable you to manage unrelated IP telephony systems efficiently, minimize VoIP management costs and validate the availability, performance, utilization and voice quality of each VoIP platform.

How can I manage unrelated IP telephony systems efficiently?

The best way to create efficiency is through familiarity with one product and one user interface. This means that you don't have to install, load and unload multiple software clients or swap from one set of terminology to another, learn shortcuts and gain deep product knowledge for multiple products. Put simply, you can leverage knowledge in managing one platform to manage others. Multi-vendor management should be flexible enough to allow you to fine-tune monitoring for one platform while at the same time leverage the work you've done on another.

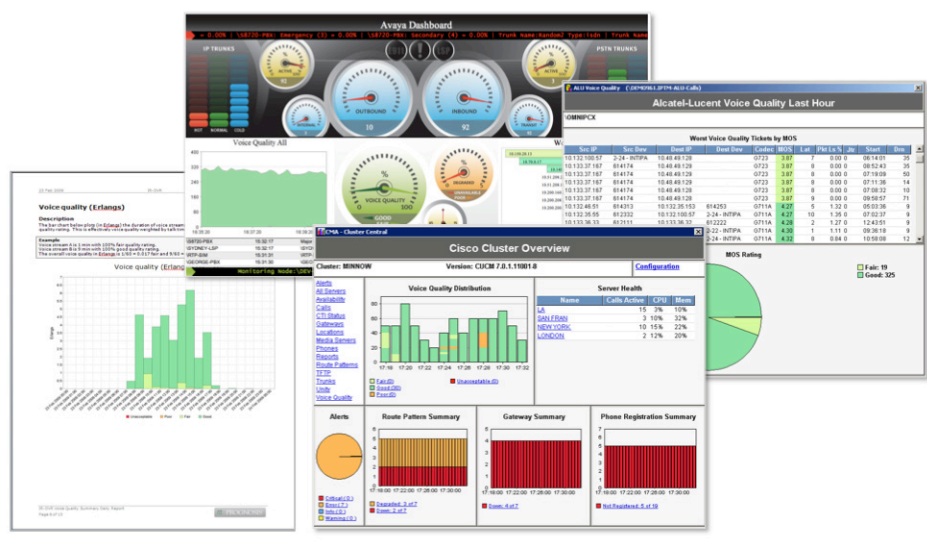
Here's a simple example.

You'd like to monitor daily usage of a Cisco IP trunk connecting a few small regional offices. This trunk has 'x' capacity and you expect it to be almost completely utilized most of the time. In contrast one of your Avaya gateways has 'y' capacity, and services ten times the number of calls as the Cisco trunk. In both cases you must ensure there is always plenty of capacity.

Managing both platforms through a single interface and with a common skill set creates efficiency. You can define a benchmark for the Cisco trunk utilization and leverage it for the Avaya gateway. First, define the operational benchmarks and alert conditions. These will include what circumstances trigger the alert, how many times the condition must occur before an alert is generated, the alert destination, the 'on' and 'off' event text and so on.

You can then test the threshold on the Cisco trunk, fine tune it and refine the conditions to suit the requirements of the Avaya gateway. You can set alert conditions to trigger if more than 100 calls are active for the Cisco trunk but suppress that number on the Avaya gateway because 100 calls will have no impact on the available capacity. You can combine custom visual alerts for both platforms on a single screen together with other vital statistics like how the trunks perform under load during the busy hour.

Even when the terminology varies from platform to platform or the information is available from one system but not another, you can use common skills to create and fine-tune a threshold that's specific to the environment you wish to monitor. If problems arise, alerts are in keeping with the specifics of each trunk and platform.

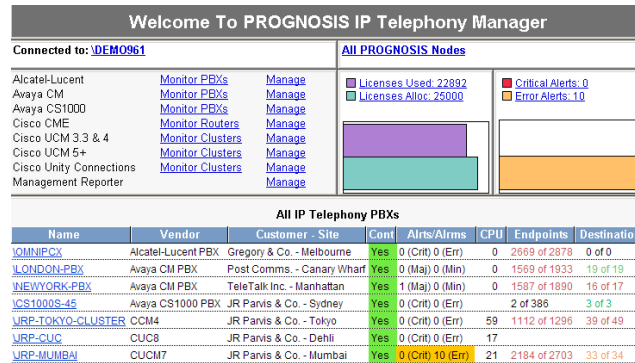


Multi-vendor IP telephony management

In terms of usability, managing multiple platforms from a single screen within a common interface makes you much more productive. No more switching between browser windows or products and losing their context. Highly customizable tabbed views contain drilldowns as well as summary-level detail for any monitored component. You can switch easily between displays, combine any elements into custom dashboards and view them in a unified client interface and through a choice of web browsers.

How can I manage all my customers and their platforms?

You can easily manage multiple customers across multiple vendor platforms through a single interface. Also known as multi-tenancy, a secure connection to each customer ensures that monitored environments are kept separate from each other.



Display showing multiple customers across multiple platforms and locations

How can I minimize the cost of managing disparate IP telephony systems?

There are significant cost reductions to be gained by using a single product to manage IP telephony platforms from multiple IP-PBX vendors. For example:

- No need to purchase and maintain separate management tools to manage the health and performance of each vendor's equipment.
- Reduce resource-intensive evaluation and purchasing, maintenance and upgrade processes for multiple management systems.
- Reduce training costs by using a single user interface.
- No need to employ specialist management staff on a per-platform basis. Staff can manage all monitored platforms through a single interface and leverage each others' knowledge.

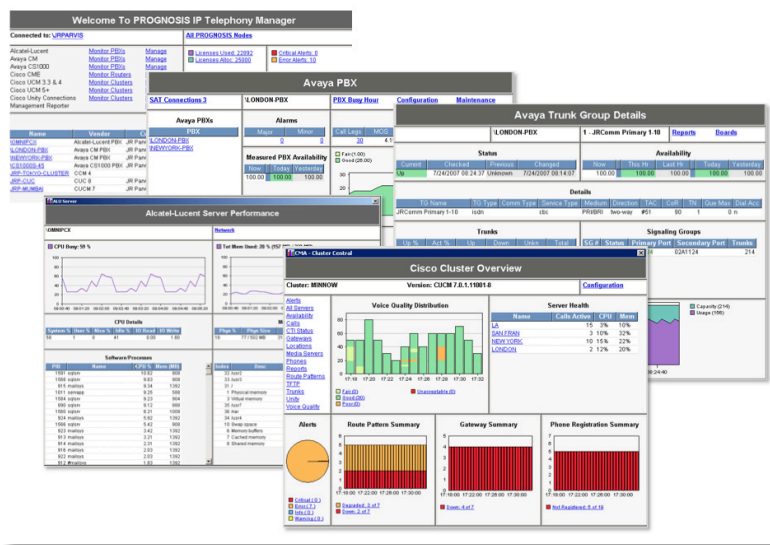


Displays showing Cisco and Avaya call totals

What if I have more than one version as well as more than one vendor?

Managing more than one version or technology from one or more vendors is easily achievable. Metric collection techniques will vary, but a multi-vendor client or browser interface will unify quality and performance information.

Take for example, managing various Cisco IP telephony solutions. At the branch level you may have Cisco Unified CallManager Express, SRST or Unity Express routers. In other locations there may be older software such as Windows-based Unified CallManager. Some locations may have upgraded to Cisco Unified Call Communication Manager. This creates a combination of different versions, technologies, operating systems, and capacity requirements.



Multi-vendor monitoring using customized screens

A multi-vendor VoIP management solution can collect metrics from each of those environments as well as other vendors such as Avaya and Alcatel-Lucent and consolidate it all for the administrator. Efficiency gains are self-evident and significantly reduce the time and cost of managing disparate platforms.

As the primary goal is to select a single management tool for multiple vendor IP telephony platforms and a large user population, be sure to make scalability one of the key evaluation criteria. It should be based on the projected size of the rollout and not the current or even short-term size of the deployment.

The solution's ability to scale readily to these volumes and monitor thousands of devices simultaneously if you need it, must be established. A multi-vendor environment may have hundreds of PBXs and tens or even hundreds of thousands of phones. These will generate lots of data from multiple locations so the selected management solution will need to accommodate this. It must collect, correlate, store and retrieve data with minimal impact on the underlying network while at the same time providing as close to real time visibility as possible.

Flexible Alerts

Multi-vendor management should be flexible enough to allow you to fine-tune threshold conditions for individual components and leverage work that you've done on other managed platforms.

For example, you can analyze five-minute, hourly, daily or weekly trends to determine which events can be suppressed to avoid alert floods. If maximum trunk utilization over a day was less than half its capacity you would not want to be alerted on it. However, you would want to know if usage increased or dropped dramatically.

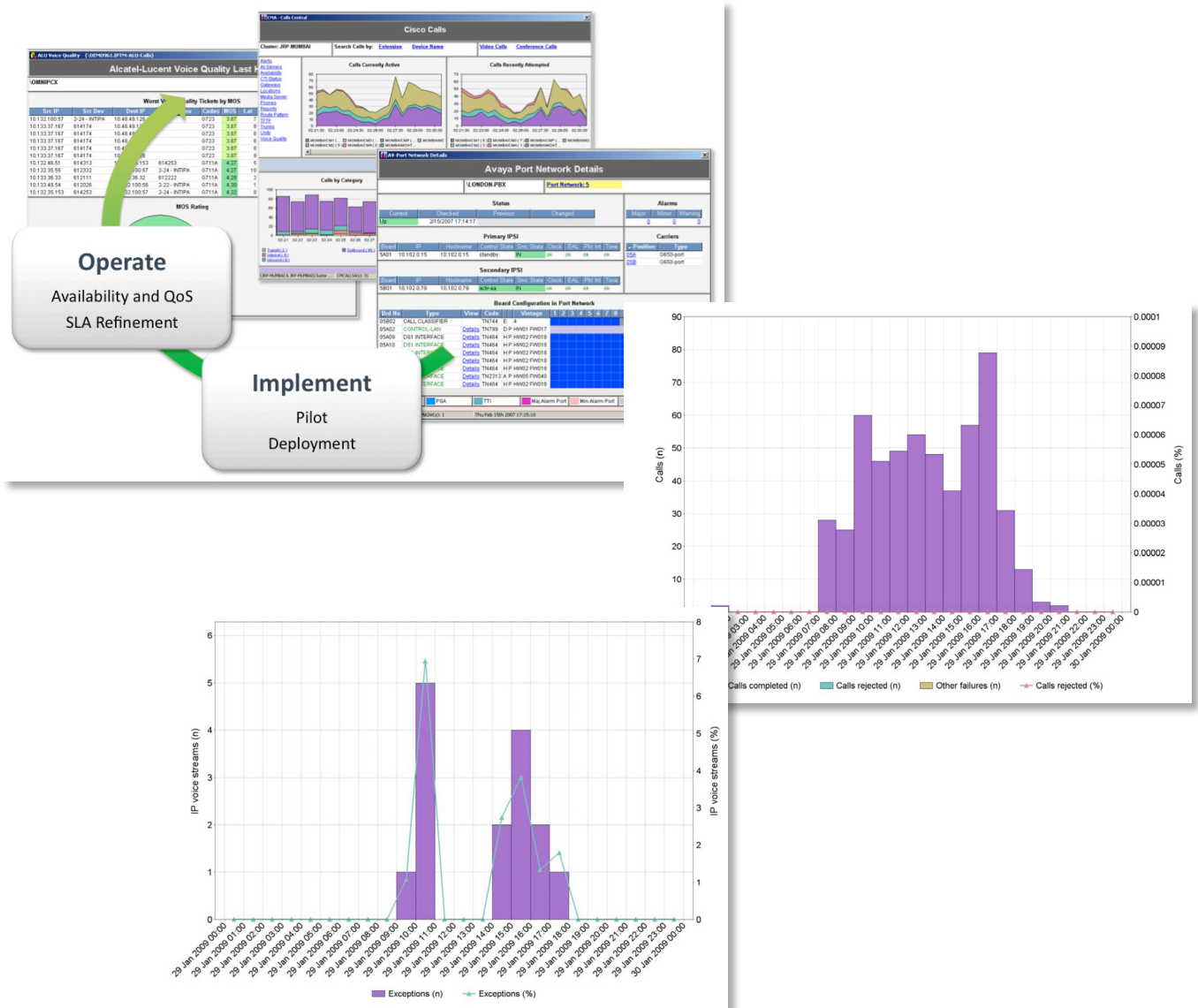
What should I look for in a multi-vendor management solution?

Ensure that the core capabilities to monitor voice quality, IPT performance and availability can scale across the VoIP ecosystem of each platform. Not every IP telephony management vendor can do this and individual IP telephony vendors restrict management to their own platforms.

Look for a solution that leverages the platform's APIs and standard protocols such as SNMP, SOAP, RTP, RTCP, HTTP, and CLI. Ensure that comprehensive and customizable reporting is available for capacity planning and service level agreement validation.

Core Capabilities

A multi-vendor VoIP management solution should monitor the core capabilities of call and voice quality, measure system performance, and help you diagnose the root cause of issues that can impair reliability—before, during and after systems are deployed. For example, measuring the impact of voice traffic on data networks is essential at each of these stages so you don't impact existing applications as well as compromise the quality, performance and availability of the IP telephony service.



Reports showing completed calls and voice quality exceptions.

Span and Scale

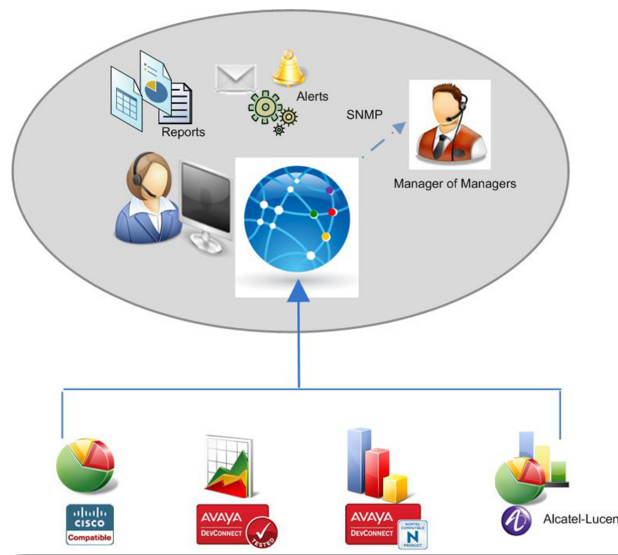
A multi-vendor VoIP management solution needs the ability to span the standard “plan, design, implement and operate” parts of Using historic trend analysis you can set benchmarks to trigger alerts and define custom alert schedules and processes that are applicable to all monitored platforms. Once these skills are acquired and the initial work is done, you can easily replicate thresholds and leverage any aspect for use in thresholds on additional devices and platforms.

Reporting

Reports incorporating operational, business and service level statistics can be automatically generated across every timeframe or produced on demand. Details should include any groups of devices, users, locations or customers. In this way you can see the availability, performance, utilization and quality of each VoIP platform, providing insight to the use of your existing infrastructure and helping you plan effectively for future capacity.

It should be noted though, that not all information is readily available for every platform. For example, real time call information is available for Avaya Communication Manager via the RTCP stream, but must be collected via SNMP for Avaya Communication Server (previously Nortel CS1000). When collecting information on Cisco and Alcatel platforms, voice quality is calculated from CDRs written at call completion and so on.

Irrespective of the source, reports should provide information about voice quality, ecosystem availability and performance.



Unified multi-vendor management delivers centralized performance metrics

VoIP Ecosystem Performance Correlation

As the top issues affecting VoIP call quality on any platform are frequently found within the network, a multiple-vendor VoIP management solution with integrated network diagnostic capabilities helps you correlate, diagnose and resolve performance issues that affect the quality of your VoIP service.

This enables simple and rapid troubleshooting via an end-to-end view of the entire VoIP ecosystem across multiple vendor platforms. You can:

- Automatically discover network links, phones, PBXs, gateways and interfaces in real time so you can conceptualize network topology quickly.
- Classify network devices by type and vendor so you can see the busiest nodes, their links and latency.
- Correlate voice quality with network performance in real time.

Integrating network diagnostics with VoIP management unifies information presentation and provides a full picture of trends in the network over time, enabling the best correlation between application and network performance.

Flexible management

There are several critical criteria multi-vendor management must meet to be effective in distributed environments. Beyond the need to manage multiple locations, hundreds of PBXs and potentially thousands of phones, the following should be considered.

Multi-vendor management should:

- Provide a consolidated view of a distributed hierarchy
- Provide a choice of drill down and summary information for individual platforms, locations and devices
- Enable core management functionality beyond the data center
- Allow per region and location views to preserve both privacy and bandwidth between regions
- Escalate events
- Summarize availability and performance information
- Incorporate remote monitoring with a central data center for higher level enterprise-wide monitoring, alerting and reporting.

Flexible SLAs

Integrated multi-vendor VoIP management allows you to design, deliver and validate operational and service level agreements for stakeholders and customers. An extensive selection of key performance indicators should be available to build reports incorporating voice quality and availability and performance of PBX hardware, calls and trunks.

Reports should also indicate the frequency and duration of impacted and degraded devices, any downtime, failed calls, use of failover routes, busy hour statistics and so on.

Customizable Views

The ability to create customized views allows you meet specific stakeholder needs, which is particularly useful when monitoring VoIP platforms from multiple vendors. For example, in a single screen you might want to monitor busy-hour activity across all PBXs, irrespective of vendor platform, or view call throughput via all IP or PSTN trunks at five-minute intervals.

The ability to customize screens means that you can change monitoring intervals, modify alert criteria, re-use packaged components, create new customer or line of business screens and so on.

Interoperability with Network Manager of Managers (MOM)

Specialist multi-vendor VoIP management needs to complement network and event-management tools and relay problem conditions via SNMP alerts and APIs to the MOM. It must also assimilate with your operational support processes and integrate with existing management frameworks, business processes, team structures and toolkits.

Conclusion

With the right tools, you *can* meet the challenge of managing your multi-vendor IP telephony environment!

Unified management of mixed version and multi-vendor environments combined with the flexibility and scalability to report across multiple sites will have a significant and favorable impact on total cost of ownership, and deliver the following benefits:

- Support for core capabilities across the complete management lifecycle
- Support for vendor specific metrics and application protocol interfaces
- Scalability
- Flexible management options
- Flexible SLA management
- Customizable views
- Interoperability with network management tools.

It also:

- Provides operations staff with a unified view across disparate IP telephony environments
- Eliminates the need to procure and maintain multiple management tools
- Reduces the time and expense involved in training staff to use different management solutions.

Unified multi-vendor VoIP management gives you a consistent and consolidated view of performance, usage and capacity across your entire multi-vendor IP telephony ecosystem.

For more information please visit www.prognosis.com/voip-monitoring.



How do multi-vendor implementations happen?

Service Provider

1. You've just acquired new clients with different VoIP platforms. You need to manage the disparate environments with your existing staff, software and processes.
2. You'd like to be able to offer managed services for new platforms to attract new clients or additional business from existing clients.

Autonomy

Your organization uses a decentralized decision-making process. The decision to purchase and deploy another vendor's IP telephony system may have been made at a regional or branch level.

Specialty applications

Specialty applications for call centers, or Unified Communications' enablers can often mean solutions from multiple vendors are used. One vendor's IP telephony system may be used for the back office and another with more client-specific features deployed for customer service.

Fit for purpose

Some IP telephony vendors may offer a more appropriate solution for an organization's small branch offices than the primary, head-office system.

Location

You may have developed a multi-vendor environment due to growth into foreign territories where the local IP-PBX manufacturer dominates sales and support channels, for example Siemens in Germany, Alcatel in France or NEC in Japan.

Leverage and vendor independence

Some organizations may have leveraged two or more vendors for strategic reasons, to take advantage of new features, or to avoid excessive dependence on a single vendor.

Mergers and acquisitions

Industry consolidation and strategic growth through mergers and acquisitions are perhaps the most common reasons for the occurrence of multi-vendor IP telephony.

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Integrated Research

Since 1988, Integrated Research has been providing Prognosis performance monitoring software solutions for business-critical computing environments. With offices in the USA, Europe and Australia and a global channel-driven distribution network, the company services customers in more than 50 countries.

Prognosis for IP telephony was launched in 2000, and has been chosen by many of the world's largest companies to manage their IP telephony deployments. These include the world's two largest aerospace companies, two of the largest US electric utility companies, three of the largest US financial services firms, and the largest telecommunications companies in the US, Germany and France.

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