

MANAGE YOUR IP COMMUNICATIONS SYSTEM WITH A COST-EFFECTIVE EDGE



A WHITE PAPER ON TRANSFORMING IT AND
TELECOM VOICE SERVICE DELIVERY PRACTICES
IN A VIRTUAL VOIP ENVIRONMENT

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EXECUTIVE SUMMARY

Both private enterprises and public sector organizations are initiating VoIP deployments, delivering expanded services to multiple facilities and users. VoIP has become an important tool, enabling IT and telecom managers to deliver superior voice services, while decreasing overall costs. Unlike its time division multiplexing (TDM) predecessor, IP Communications involves a network shift. It uses an open, distributed architecture, in which servers or clusters of servers run separate functions – from call management and messaging to automated call distribution (ACD) and interactive voice response (IVR). In this new environment, VoIP enables virtual architectures – grouping multiple application-specific servers or server clusters together to support a set of users – and presents the opportunity to transform the management of voice networks to increase efficiency, boost reliability and decrease costs.

IP Communications provides the opportunity to change the system management paradigm. Combined with superior voice services, IP Communications seamlessly delivers intelligent applications – such as unified messaging, contact center virtualization, presence and video conferencing – across wide geographies. But virtualization adds management complexity. Many companies accept this and make no real change in their solution management paradigm. This need not be the case, because VoIP also enables IT and telecom professionals to introduce significant new administrative and service capabilities by taking a new approach to **IP Communications system management.**

The right IP Communications system management solution can deliver significant efficiencies compared with legacy TDM systems, including:

- > Speeding the delivery of IP telephony capabilities to all users
- > Automating service delivery through a single interface that manages all IP telephony systems to mask complexity
- > Enforcing best practices
- > Providing a lower-cost solution for moves, adds, changes and deletes (MACDs)
- > Easing the provision of uniform services across departments and locations
- > Providing secure multi-tenancy for efficient resource utilization
- > Allowing employees and local administrators to manage IP telephony services through multiple levels, at the facility, division, department, group and individual level
- > Tracking costs and savings by providing critical metrics on a per user, group, department and division level
- > Providing modularity for access to appropriate levels of functionality

IP Communications management enables a powerful framework for administering change, maintaining quality and measuring performance. As a result, IT and telecom professionals can elevate IP Communications system management as an integral element in IP telephony deployments to align with key corporate or institutional objectives for cost-savings, greater reliability and efficiency.

THE MOVE TO VOIP

In the private sector, companies strive to use technology as a competitive advantage. In the public sector, organizations endeavor to use technology to deliver a myriad of services to a vast array of locations in the face of shrinking budgets – to “do more with less.” In both instances, telephony systems are critical to efficient on-going operations. However, IT and telecom staffs are plagued by numerous issues with current TDM telephony services. These include:

- > Redundancy in deploying new services for phone, voice mail and contact center users in various locations
- > Delays in implementing moves, adds, changes and deletes, especially during periods of growth or consolidation
- > Difficulty in delivering uniform services across multiple locations
- > Requirement for IT staff to have specialized system management expertise to ensure best practices

To address these limitations, as well as gain functionality and cost advantages, many organizations have decided to transition from TDM-based systems to VoIP.

During this transition, organizations often overlook the importance of IP Communications system management and prioritize other issues, including security, quality of service (QoS), reduction of latency and jitter, and role changes driven by voice and data convergence. Since IP Communications offers a new network infrastructure, enterprises and public sector institutions have an opportunity

Key: In this paper, we use VoIP to label the technology, IP telephony to discuss phone-specific applications of VoIP and IP Communications to discuss broad-based, enterprise VoIP applications.

to elevate IP Communications management as an integral element in IP telephony deployments. Doing so allows them to positively transform internal processes for voice service delivery throughout the organization.

Organizations have an opportunity to elevate IP Communications system management as an integral element in deploying IP telephony systems.

DEVELOPING AN IP COMMUNICATIONS MANAGEMENT SOLUTION

IP Communications environments offer significant advances in functionality, including:

- > Web, audio and video conferencing
- > Presence and Find Me/Follow Me with call forwarding to multiple devices
- > Email and voice messaging through a single enterprise application
- > Simplified and/or centralized MACDs
- > Seamless multi-site, multi-channel contact center applications

These new capabilities and the distributed nature of IP Communications systems introduce more comprehensive configuration issues, as well as the requirement to coordinate between multiple interdependent systems. Service delivery requires more input from users, including call forwarding numbers, department or location information, service type, etc. In addition, management systems must configure multiple functional servers and clusters that support VoIP applications according to well-defined rules.

As part of an IP Communications telephony systems' architecture, in which most or all applications are centralized at a main location or in primary facilities,

VoIP services can be delivered virtually to all users regardless of location. IP phones and soft phones at home offices and headquarters campus buildings can securely log on to centralized servers and server clusters to obtain services based on privilege rules. To effectively and consistently configure these user privileges while eliminating redundancy, system and user management requires

business logic. System management architectures must expand administrative and service capacity by using business rules to enable intelligent delivery of user services and by allowing common administration of distributed VoIP system components. As part of these advances, IP Communications system management solutions should support the following principles: (see chart below)

ATTRIBUTE	REQUIREMENT
Provide Secure Multi-tenancy to Share Administration among Users and IT Staff	> Institute a multi-level administrative system to allow high-level administrators to configure and maintain the system at an enterprise level, while allowing local-administrators and users to manage a select set of service attributes. This allows IT staff to concentrate on high value-add issues and allows local administrators and users to manage daily tasks.
Enforce Configuration Consistency and Minimize Adoption Issues	> Develop easy-to-understand configuration rules – for naming conventions, dial-plan consistency, service grouping, capacity limits and other parameters – that streamline administration and ensure high reliability. > Provide the ability to perform moves, adds, changes and deletes through a unified, easy-to-understand interface.
Deliver Metrics and Tools to Assist in Decision Making	> Securely provide reports segmented by location, department, group and user levels. > Provide report and metric commonality across all locations and users to enable efficient resource management decisions.
Provide a Platform to Simplify Management of All VoIP Systems/Components	> Directly interface with call management, ACD, unified collaboration, messaging and IVR systems to implement configuration changes correctly and automatically. > Maximize uptime by ensuring that all VoIP application servers and server clusters are operating within prescribed limits.
Support IT Infrastructures Library (ITIL) Change Control Database	> Track all configuration changes across all systems to adhere to IT best practices and assist problem diagnosis.
Provide Solution Extensibility	> Provide capacity to introduce modules as needed, including extended reporting, monitoring, accounting, network analysis and other functions.

Support for these requirements adds significant new capabilities to IP Communications management. As a result, IT and telecom managers have an opportunity to institute a VoIP system management framework that:

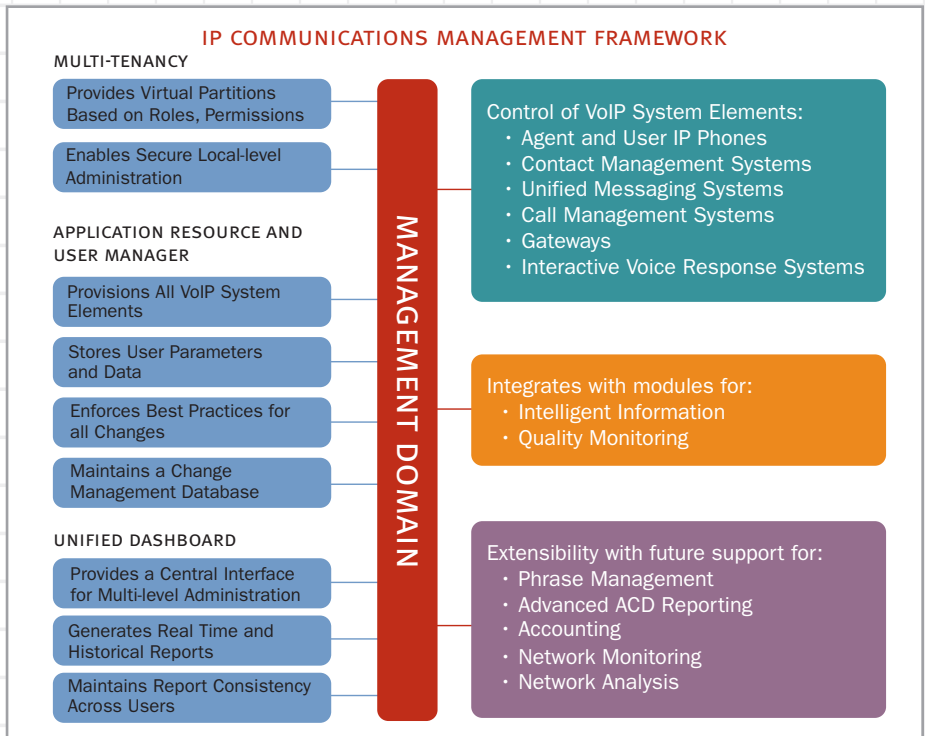
- > Provides management control to local users and administrators
- > Supports the expanding need for user information
- > Allows deployment of configuration changes to all servers and server clusters
- > Uses business rules to efficiently manage services to all users
- > Supports new metrics to assist decision making

In the process, enterprises and public institutions can lower costs, enhance reliability and raise efficiency.

ESSENTIAL ELEMENTS OF IP COMMUNICATIONS MANAGEMENT SOLUTIONS

A key objective for a VoIP network is to deliver superior services while improving efficiency. An IP Communications system management environment that controls both user and system functions can easily accomplish this goal. Its structure should include the following components:

- > **Multi-tenancy** – Virtual partitioning of a VoIP network to group users based on department, group, individual and location
- > **Application Resource and User Manager** – A configurable, rules-based engine to administer and manage all IP Communications functional elements, such as ACDs, call managers, IVRs and unified collaboration systems, as well as all user-specific parameters and information



An IP Communications management solution simplifies overall delivery of voice service applications. It facilitates transforming IT and telecom processes by providing users and local administrators selective control of the VoIP network.

- > **Unified Dashboard** – A centralized interface to integrate separate applications for multi-level administration and provide information to users regarding IP Communications call metrics and quality monitoring data
- > Enforce best practices by providing well-defined scripts and rules for configuration changes, eliminating redundancies
- > Provide critical metrics to drive resource management decisions

By introducing these elements, the right IP Communications system management framework allows organizations to transform how they provide and manage voice services. Specifically, organizations can:

- > Save IT resources by incorporating a service provider-like environment through multi-tenancy

Enterprise or public sector institutions can advance business and institutional objectives by quickly providing the collaborative capabilities of VoIP to all participants – clients, partners, outsourced vendors, employees and professionals – via one network.

MULTI-TENANCY: ENABLING LOCAL ADMINISTRATION ACROSS THE ENTERPRISE

IP Communications systems need to provide a centralized system architecture in which servers and clusters of servers deliver services to multiple locations, including headquarters buildings, branches, remote sites and home offices. This approach allows system capacity to be shared across all locations, eliminating the capacity issues of TDM systems in which excess capacity may be available in certain locations, but may not be accessible to users in other locations that need it. By enhancing call resource availability, IP Communications systems simplify capacity planning and service delivery. In an IP Communications environment, users and groups of users can act as “subscribers” to services delivered by a centralized IP Communications system. However, to enable users and group of users with the same or similar service attributes to autonomously administer their needs, IP Communications networks need multi-tenancy.

Multi-tenancy allows IT staff to partition groups of users with common requirements and manage the groups securely and independently. For example, administrators can partition specific sites and facilities or groups and departments within sites or facilities for separate administration. For system management purposes, each partitioned group can be treated as a subscriber or a group of subscribers.

Multi-tenancy gives groups and users day-to-day control, while reserving higher-level control for IT staff – effectively leveraging IT staff resources.

Multi-tenancy enables system administrators to pass relevant local control to partitioned users without requiring extensive training on VoIP application configuration rules. As a result, partitioned users can perform moves, adds, changes and deletes, select desired services within allowable limits and obtain call usage reports. Multi-tenancy gives groups and users day-to-day control, while reserving higher-level control for IT staff – increasing user involvement while more effectively leveraging IT staff resources.

With multi-tenancy, senior-level administrators retain responsibility for:

- > Overall network dial-plans
- > Complex configurations, such as associating sites with media gateways, maintaining centralized servers, matching IP telephones to appropriate servers for service login
- > IP Communications system capabilities for call managers, ACDs, IVRs, unified collaboration and messaging servers

With this functionality, senior-level administrators can concentrate on enterprise-level issues, allowing local administrators and users to oversee minor administrative details.

APPLICATION RESOURCE AND USER MANAGEMENT TO ENFORCE BUSINESS RULES AND BEST PRACTICES

With multi-level administration through multi-tenancy, IT managers also need to ensure that local administrators and users follow uniform system practices – naming conventions, dial-plan patterns and specific rules for making moves, adds, changes and deletes. To prevent configuration errors and to ensure rapid fault isolation in the case of network problems or failure, IT staff should design these rules based on organizational best practices.

An Application Resource and User Manager provides control and administration of all VoIP functional elements with an intelligent layer that simplifies and automates implementing system changes across the network. Specifically:

- > **Make change requests trouble-free**
Provide rules for each level to allow local administrators and users to make change requests without having a full understanding of dial plans, number plan inventory and system capacity, while preventing errors and ensuring adherence to IT-mandated practices
- > **Implement change commands to all relevant systems** – Automate change requests by maintaining a database of user data, system configuration parameters and a set of system commands that update and comply with relevant procedures to allow local administrators or users to implement change requests without detailed knowledge of system translation patterns for servers or server clusters.

In addition, the IP Communications management structure should track changes made to each system component in a change control database – a central part of the IT Infrastructures Library (ITIL) framework for instituting best practices.

As a result, enterprises and public institutions can optimize the use of IP telephony services across all users through a mechanism that helps rapidly introduce new services, maximizes IP Communications system uptime and addresses potential problems or isolates faults, should they occur.

UNIFIED DASHBOARD FOR CONSOLIDATED ADMINISTRATION AND METRICS

IP Communications system management must provide consistent, multi-level administration and reporting with appropriate partitions based on roles and permissions.

A unified dashboard allows administrators to make configuration changes for phone, ACD, unified collaboration, messaging and IVR systems in one location and ensures that updates are executed correctly and automatically.

Since metrics drive better resource management decisions across the enterprise, comprehensive, multi-level reporting is crucial. Reporting should allow users, group administrators, branch managers and top-level enterprise administrators to securely generate reports, including only the information they are authorized to view. For each level, an IP communication management solution should exclude data for higher levels, guaranteeing security by providing a closed reporting structure, where access to broader data is only granted to appropriate users.

A multi-level reporting structure provides IT staff with visibility of critical metrics across locations, users and groups to help drive informed decisions regarding IP telephony resources. Available reports should include:

- > **Audit Trail** – Provides a record of every system administration action
- > **Configuration** – Shows the overall telephony plan and configuration of each VoIP system component and IP phones
- > **Billing** – Details billing information for each partition – from user and group to enterprise level
- > **Contact Center** – Provides real-time and historical data at multi-tenancy levels for call summaries, wait times and agent utilization
- > **Quality Monitoring** – Delivers network layer information to allow tailoring of the VoIP network based on QoS and jitter characteristics

In addition, to eliminate issues with report consistency across users and groups, IT staff, groups and individual users should have consistent reports that reflect like-for-like criteria and fields. Having consistent reports allows IT managers, local administrators and users to glean valuable information by comparing data across all locations, facilities and groups. Consistent reports help IT professionals plan and implement new programs or apply resources to other locations as needed and users can manage their individual environment to coincide with the business requirement of their group, department, division or location.

IP COMMUNICATIONS MANAGEMENT ADVANTAGES

IP Communications management helps enterprises and public sector organizations simplify the planning, deployment and administration of IP telephony services. By integrating local-level administration and user control, delivering critical metrics and implementing routines that support best practices for configuration and maintenance, IP Communications management promises organizations numerous advantages that drive return on investment:

- > **Greater Reliability** – Implementation of best practices and availability of critical metrics ensures greater reliability of the IP Communications system.
- > **Greater Efficiency** – A converged voice and data network enables better capacity planning through a centralized, call resource architecture. Disparate system components can be configured through a single interface with multi-tiered administration access and a faster mechanism for MACDs.
- > **Lower Costs** – Reduces demands on IT staff resources by allowing local administrators and users to manage MACDs and day-to-day administration. A consistent set of rules and templates for performing configurations and change requests minimizes user problems and avoids calls to service desks. Reports can be electronically entered into enterprise accounting systems, avoiding manual re-entry of data, saving time in charging calls back to appropriate departments or groups and helping identify anomalous call patterns.

IP Communications management allows enterprises and public sector institutions to transform the process for voice

service delivery and to maximize VoIP gains, including cheaper MACDs and the ability to offer uniform services across departments and locations. With IP Communications management, organizations can track cost savings and better plan capacity with consistent reporting of critical metrics across all facilities and departments. IT managers are better able to handle crucial projects with the knowledge that important IP Communications management is under control. Through multi-tenancy, users and local administrators can efficiently configure IP Communications services based on roles, without redundancy or need for specialized training. Finally, IP Communications management allows IT and telecom managers to add new modules as required during the IP Communications system's life cycle.

With the opportunity to transform the process for voice service delivery across the organization, enterprises and public sector institutions can maximize IP communications gains.

ABOUT SPANLINK COMMUNICATIONS

Spanlink Communications is a leading provider of REAL customer interaction solutions that leverage VoIP technology. A Cisco ATP Certified Channel Partner, Spanlink has unmatched experience with Cisco IP Communications solutions and is a leading developer for contact center, collaboration and IP Communications system management solutions for public institutions and medium and large enterprises.

Spanlink offers CentralControl™, an IP Communications system management solution that presents a unified, holistic and simplified interface to VoIP networks and delivers multi-tenancy, automated administration and critical metrics to drive resource management decisions. Deployed to run state- and nation-wide public and enterprise VoIP networks, CentralControl has been rapidly adopted by IT organizations to tap the financial and operational benefits of VoIP. Large enterprises and state governments have implemented CentralControl in network environments to reap the transformational and cost benefits of VoIP. Today, CentralControl integrates with Cisco CallManager, Cisco Unity, IVR and Cisco ICM platforms.

For more information on Spanlink Communications and CentralControl, visit www.spanlink.com, telephone 800-303-1239 or email Mktg@Spanlink.com.

