Alcatel-Lucent Converged Wireless IP Management Solution
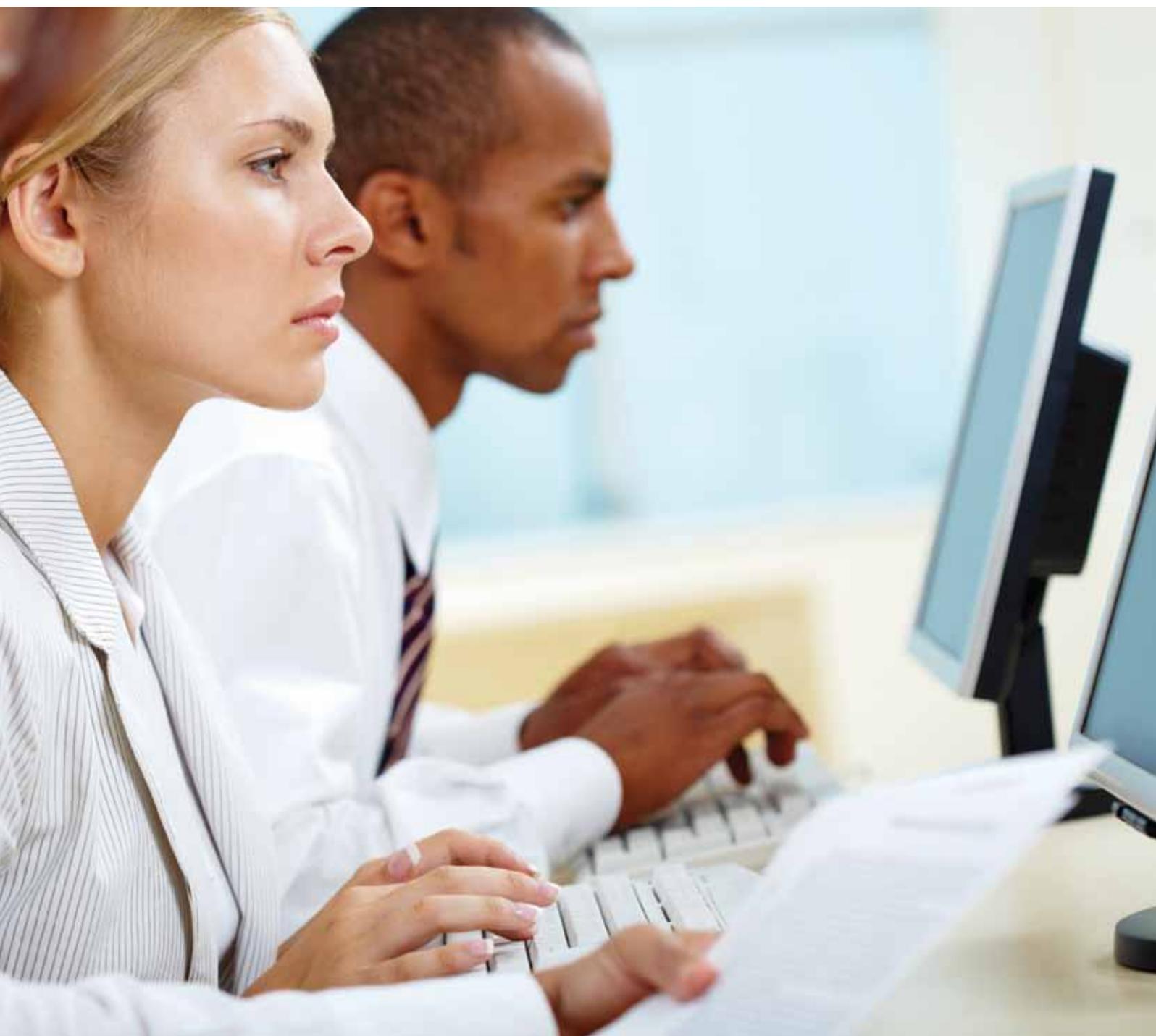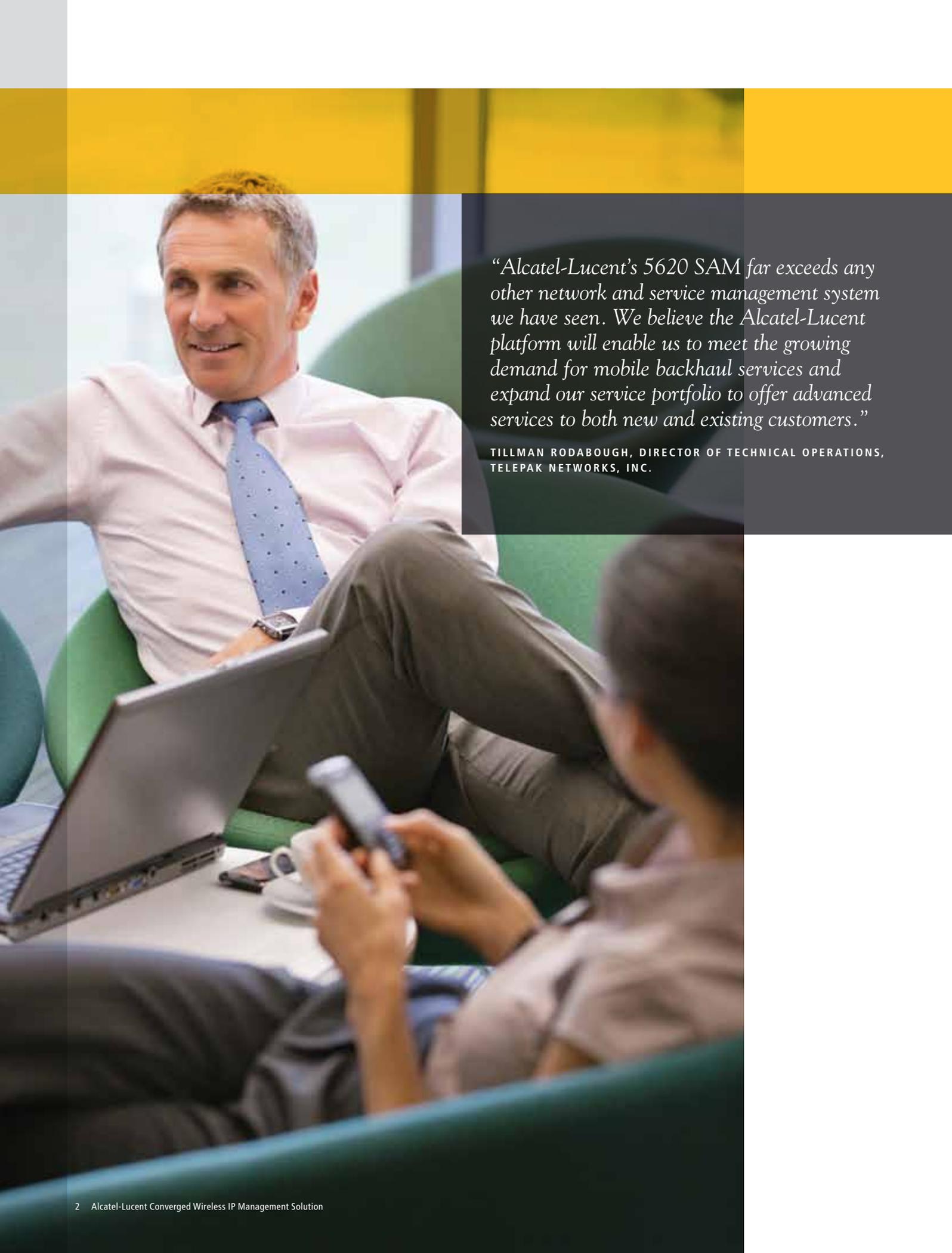
Alcatel·Lucent

Unified, service-aware network management for wireless service providers

"Alcatel-Lucent's 5620 SAM far exceeds any other network and service management system we have seen. We believe the Alcatel-Lucent platform will enable us to meet the growing demand for mobile backhaul services and expand our service portfolio to offer advanced services to both new and existing customers."

TILLMAN RODABOUGH, DIRECTOR OF TECHNICAL OPERATIONS, TELEPAK NETWORKS, INC.

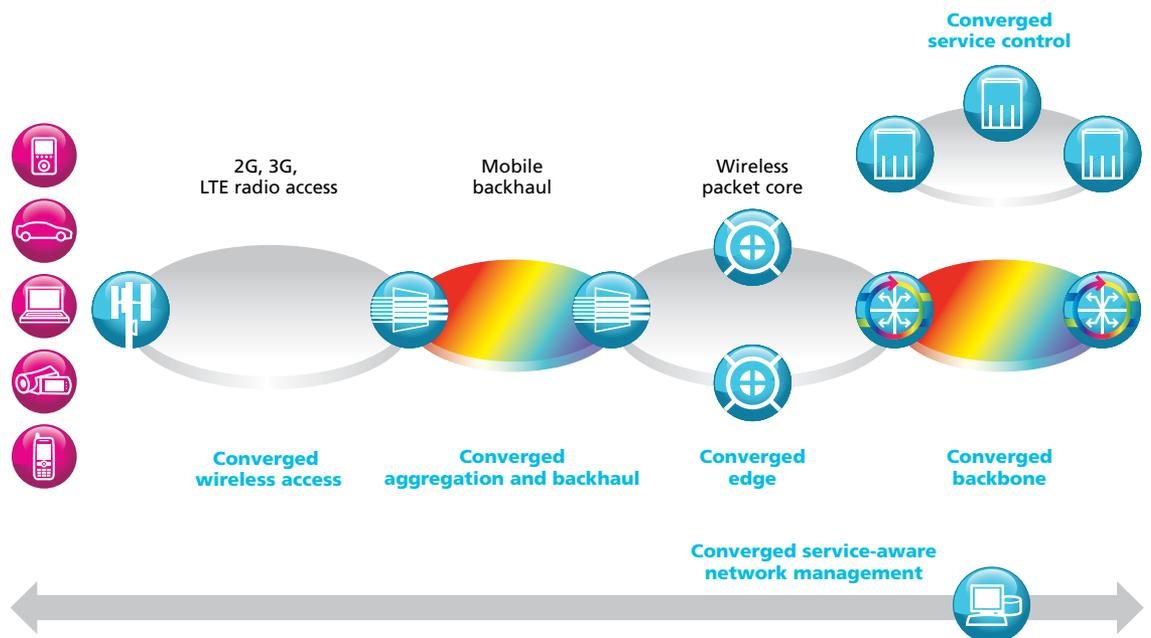# Overcoming operational challenges of the wireless IP network

Alcatel-Lucent's High Leverage Network™ (HLN) architecture outlines the vision of an all-IP network that is scalable, intelligent and efficient. It provides a common, converged foundation that enables service providers to increase network capacity at the lowest cost per bit to deliver new services with reduced time-to-market and faster return on investment (ROI).

Figure 1 outlines HLN for wireless service providers by overlaying the key wireless functional capabilities on the HLN architecture. The focus of this document is on the Converged service-aware management domain, an area that is of critical importance to wireless service providers. As mobile and IP technologies converge, network management has become increasingly complex. This transformation poses significant operational challenges to mobile service providers. Maintaining a high-quality subscriber experience within an all-IP network requires operators to respond quickly to the dynamic nature of today's mobile services and demands a new approach to network management.

Traditional element and network management solutions do not allow service providers to keep pace with the volume and complexity of today's mobile services. Manual processes are too slow and error prone. Reactive problem detection leads to longer outages and dissatisfied customers. In addition, integration with existing systems and processes is expensive and time-consuming.

What mobile service providers need is service-aware end-to-end management that provides a unified view of all network domains from RAN, across backhaul, to the packet core.

Figure 1. A High Leverage Network™ for wireless service providers

Converged service control

2G, 3G, LTE radio access

Mobile backhaul

Wireless packet core

Converged wireless access

Converged aggregation and backhaul

Converged edge

Converged backbone

Converged service-aware network management

The Alcatel-Lucent 5620 Service Aware Manager (SAM) frees mobile service providers from the traditional boundaries of element and network management, offering advanced assurance, and provisioning capabilities designed for the complexities of converged wireless IP networks.

The 5620 SAM provides mobile service providers with:

- Unified, end-to-end management for both data and control plane, including RAN, backhaul and packet core
- Automated configuration and flexible provisioning tools to minimize operator error and decrease time to market
- Proactive assurance capabilities that integrate physical, network routing, and service topologies, simplifying management tasks
- A flexible, open architecture that ensures faster and cost-effective integration with existing operational processes and systems
- Proven solution with more than 350 deployments globally

Accelerated configuration and provisioning

Speed and accuracy are essential when building out the network or adding capacity. Cumbersome manual provisioning processes using traditional element management tools and command line interfaces have proven highly inefficient and resource intensive.

The 5620 SAM accelerates configuration and provisioning processes while minimizing the risk of misconfigurations. It enables coordinated deployment of data across network elements operating at both the Mobile and Transport Layers. An easy-to-use graphical user interface supports point-and-click configuration and provisioning (for example, for Control Plane Bearer Deployment and Tracking Area Management).

Advanced wizards can also be used to guide operators step by step through complex configuration and provisioning tasks, while scripting, templating, and rules-based configuration allow service provider experts to customize the 5620 SAM for specific network or service requirements. Once provisioned, status and performance of complex multi-layer services can be verified with a single click.

Wireless networks need frequent updates to address coverage extensions, traffic density increases or performance optimization. The 5620 SAM seamlessly integrates the radio network planning, provisioning and optimization processes required to minimize service disruptions and performance degradations often associated with such activities.

The result is maximized provisioning productivity, improved network availability and increased service delivery velocity.

Proactive assurance

As networks become increasingly complex, reactive problem detection and cumbersome manual resolution processes lead to longer outages and dissatisfied subscribers.

With the 5620 SAM, service providers can proactively identify and resolve potential problems in the network before they impact customers. Scheduled test suites, for example, give service providers detailed information on network performance and thresholds for any services where increased latency, jitter, or packet loss could diminish quality of experience.

When a problem does occur, a comprehensive set of advanced tools is offered to let operators quickly pinpoint and resolve the issue. Integrated graphical views of the physical and logical topology depict all resources traversed by a service, including the actual routes across the network. Enhanced multi-layer alarm correlation reduces the number of alerts and identifies the root cause of the problem.

To further enhance assurance capabilities, the Alcatel-Lucent 5650 Control Plane Assurance Manager (CPAM) provides real-time control plane visualization, surveillance, and problem diagnosis, delivering unprecedented visibility into the network's underlying IP routing layer. Used together, the 5620 SAM and 5650 CPAM enable operators to manage both user plane and control plane bearers in the Wireless Layer as well as the underlying IP/MPLS Transport layers. Bearer visualization, path test, wireless-to-IP/MPLS Transport Layer correlation, as well as proactive and on-demand IP reachability monitoring, help mobile service providers to improve customer satisfaction and streamline operations.

From cell tower to mobile backhaul to packet core, the 5620 Service Aware Manager (SAM) offers unmatched capabilities for converged wireless IP assurance.

Operational flexibility

As networks grow, the lack of a scalable management solution can severely prohibit efficient operations processes, and the ability to secure NOC operations during catastrophic events and malicious attacks is table stakes in today's "always on" world.

With a modular and scalable architecture, the 5620 SAM supports some of the world's largest networks today. Operational flexibility and security are further extended through span-of-control features that allow administrators to assign operator privileges based on geography, organization, job function or individual responsibilities. In addition, the ability to deploy the solution in a high availability, geo-redundant configuration helps ensure full availability of network and service operations even during catastrophic failures.

The challenge of integrating new technologies with existing processes and systems is magnified if processes and workflows need to be adapted and complex new interfaces between systems implemented. Deployment schedules often stretch and costs can soar.

The 5620 SAM easily adapts to existing environments, enabling rapid, cost-effective integration. To facilitate rapid integration with OSS/BSS, management information is accessible through powerful open interfaces. In addition, the Alcatel-Lucent OSS Connected Partner Program certifies interoperability with applications from market-leading independent software vendors to further reduce OSS integration time and costs.

Conclusion

The Alcatel-Lucent Converged Wireless IP Network Management Solution provides advanced assurance and provisioning capabilities designed to help wireless service providers to efficiently manage the complexities of wireless IP networks, from wireless access, across backhaul, to the packet core. Offering rapid provisioning and proactive troubleshooting that spans physical, routing, and service topologies, the 5620 SAM also provides fast and simple integration into existing operational environments and processes, resulting in unmatched operational flexibility.

Proven in more than 350 customer deployments worldwide, including some of the largest and most advanced networks, the 5620 SAM enables exceptional return-on-investment for converged wireless IP network operation. As service providers transform networks and services, the modular, extensible and scalable architecture of the 5620 SAM not only addresses today's wireless network challenges but provides a foundation to support tomorrow's market-leading, mobile and converged service offerings.