

EMC Provider Solution for Closed-Loop Network Orchestration

Ensuring integrated operational excellence for service providers and managed service providers

Faced with a number of competitive options, customers will choose a provider whose services offer the highest quality at the lowest cost. They also want a provider that can offer an increasing array of services that meet their evolving needs and interests. This reality makes ensuring service quality and service delivery—as well as delivery of new service options (which increase the likelihood of customer retention and increased sales)—top concerns and strategic priorities for service providers and managed service providers.

Against this same backdrop of ensuring service quality and delivery, and offering new services, providers also need to:

- Manage increasingly complex IT environments
- Understand how the information infrastructure affects IT service delivery—and how that, in turn, impacts business services and processes
- Reduce operating costs
- Increase the levels of service provided to customers
- Ensure compliance with governance, best practices, policies, and regulations

These factors have changed the paradigm for how providers need to approach and manage their network infrastructure—as well as the services delivered over that infrastructure. No longer can providers rely on top-down, “silo”-based management that focuses first on the infrastructure. To efficiently ensure high-quality service delivery and quick rollout of new offerings—as well as address the other aforementioned challenges—providers need to ensure that they orchestrate traditional management functions of discovery, root-cause analysis, change and configuration, compliance, and automation.

The alternative—“traditional,” non-integrated, silo-based management that’s heavily reliant on manual processes and can’t map the infrastructure to the services being delivered—just isn’t an option anymore.

Enabling closed-loop network orchestration

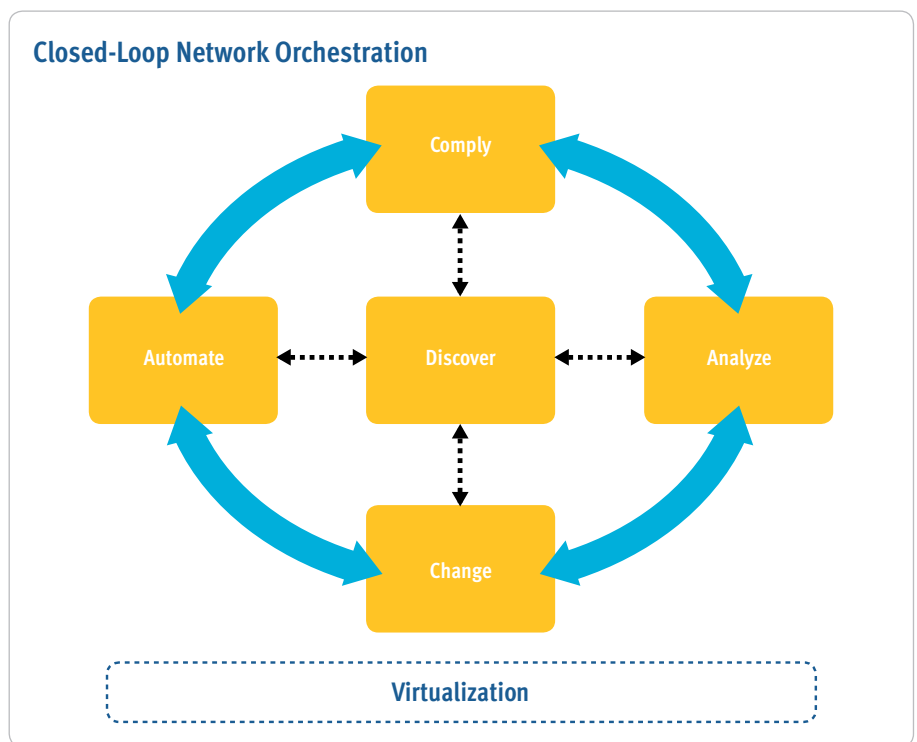
The EMC® Solution for Closed-Loop Network Orchestration offers a complete, integrated approach that addresses providers’ management challenges. Discovery is automated, updated, and synchronized throughout this closed loop. In addition, this EMC solution monitors the infrastructure based on a provider’s policies as well as availability or performance parameters that could impact delivery of the service. As a variance is detected, the solution automates analysis of the infrastructure to identify—in real time—the specific root-cause problem, as well as how that root-cause problem affects other infrastructure elements and service delivery.

Products in the EMC Solution for Closed-Loop Network Orchestration

EMC products in this solution can include:

- EMC Smarts® Service Assurance Manager Suite—automatically correlates topology and event data from multiple managed domains to diagnose root-cause problems
- EMC Smarts IP Availability Manager Suite—automatically diagnoses the root cause of failures in IP networks and provides those results to Service Assurance Manager
- EMC Voyence® VoyenceControl—automates network configuration, change, and compliance management
- EMC Smarts Business Impact Manager—shows the impact that root-cause problems have on business-critical services and processes
- EMC Smarts Network Protocol Manager—pinpoints root-cause problems in routing protocol domains and correlates these events with problems in the underlying IP network
- EMC IT Performance Reporter, Network Edition—leverages network performance data to quickly isolate bottlenecks, identify problems, enhance problem management processes, and accurately forecast network demand
- EMC Smarts Application Discovery Manager—provides automated dependency mapping of services and applications

For more complex, multi-network environments, this solution can be extended to include other EMC Smarts domain managers (such as EMC Smarts MPLS Manager, EMC Smarts Optical Transport Manager, and EMC Smarts Multicast Manager), other EMC compliance-ensuring management products (such as EMC Voyence PCI Advisor and EMC IT Compliance Analyzer—Application Edition), as well as EMC third-party adapters and integration modules.



But automation and analysis only take operations so far. With the vast majority of network-related problems stemming from change, having an integrated configuration and change management capability is mandatory to ensuring true closed-loop network orchestration. This solution monitors configuration parameters and automates configuration change processes. By leveraging the power of automation, a provider can easily see a complete change history, and, if needed, initiate a configuration change that restores the device—and the impacted service reliant on that device for its delivery. In addition, a provider can leverage this solution to ensure that configurations comply with governance, best practices, or regulations, as well as deliver reports that identify any compliance risks and prove network compliance.

Automation also extends this solution to other systems as well. In addition to its integrated fault and configuration management capabilities, this EMC solution can also be integrated with other network operational support systems, service desk systems, and business support systems.

Benefits of closed-loop network orchestration

EMC's Solution for Closed-Loop Network Orchestration—which automates the discovery, monitoring, analysis, change, and compliance of the end-to-end infrastructure—provides the visibility, control, and automation needed to align services with the ability to manage the infrastructure on which these services depend.

Benefits include:

- **Higher service availability and service quality:** Dynamically monitor the end-to-end infrastructure on which services depend, and automate the root-cause analysis of problems or symptoms that can impact service delivery
- **Manage the rapid pace of change and IT complexity:** By automatically adjusting to changes detected in monitoring the infrastructure, the solution ensures that operations keeps pace with new requirements, new services, and numerous changes.
- **Increase operational efficiency and reduce costs:** By leveraging the power of automation, the solution dramatically reduces the time and labor costs associated with isolating, identifying, and remediating problems that impact different systems, work centers, and services, and restoring service delivery. Critical (and often expensive) network experts can add more value to the business by focusing on enhancing or deploying services—not troubleshooting problems.

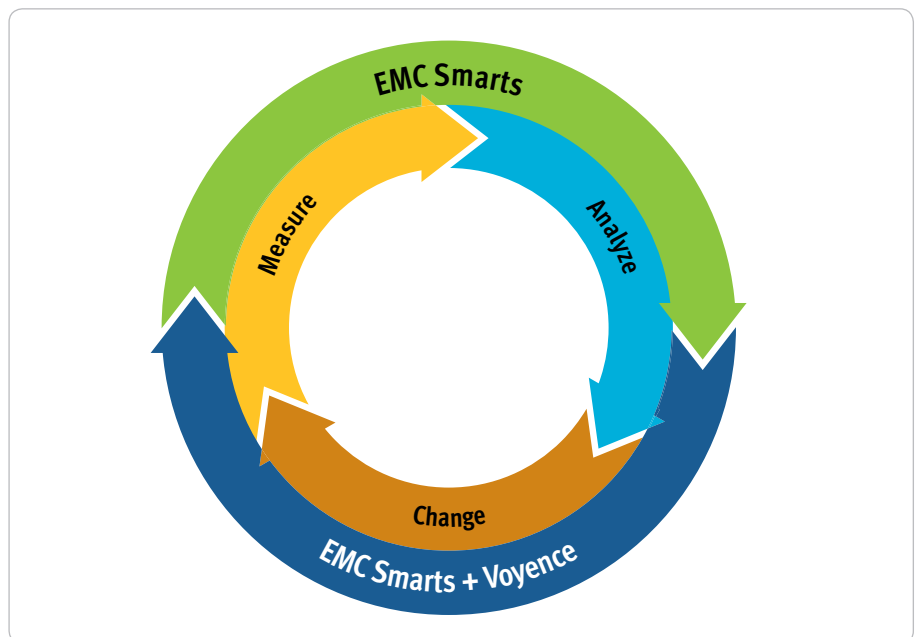
- **Understand immediately how operations impacts the business:** By linking the infrastructure with service delivery and new service rollouts, operations knows right away—in terms of business impact—how operational performance affects service quality and availability. When operations can ensure service quality and improve availability, the provider gains new business and retains more customers.
- **Deliver more services, faster:** Play a crucial role in growing the business by extending and increasing the types of services offered, and improving operations' ability to deliver new services more quickly.

Examples of how closed-loop network orchestration delivers value to providers

Consider the example of a provider setting up a new customer and a configuration error occurring (such as an incorrectly changed routing statement). Through propagation, the mistake starts affecting other devices in the network. Now not only is the new customer not receiving service, but service delivery to other customers is being impacted. Without closed loop network orchestration, operations doesn't have the visibility it needs, and it will likely take a long time—and result in a significant service outage—before the issue can be pinpointed and remediated, and service delivery restored.

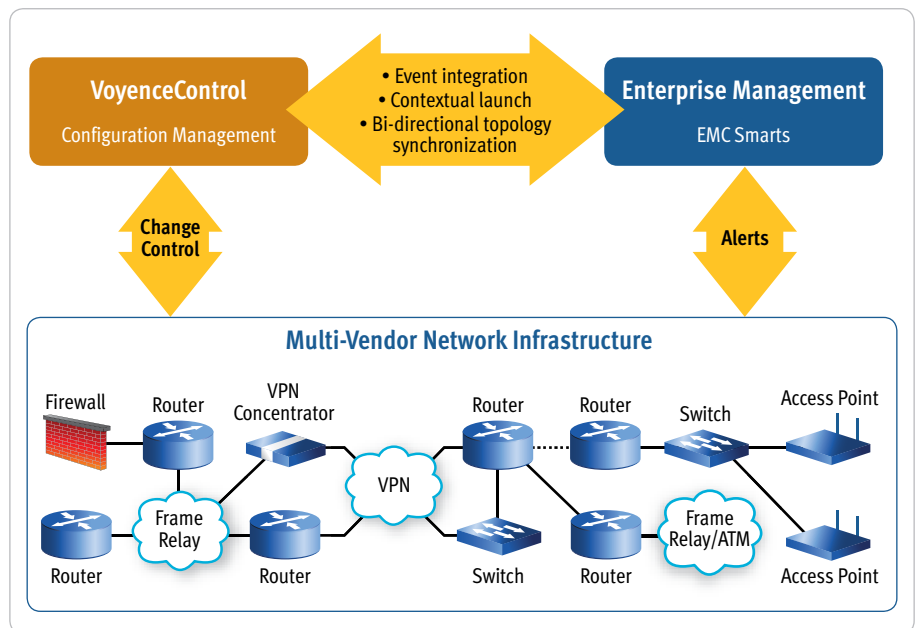
With the EMC Solution for Closed-Loop Network Orchestration, this same scenario has a much different result because the solution automatically:

- Identifies the initially misconfigured device as the root cause of the problem
- Gives operations full visibility into what services are impacted by the problem
- Invokes the change component to verify that the existing configuration is incorrect
- Remediates the misconfiguration
- Validates compliance of this configuration with established standards



Another common example is a change to an SNMP community string, which acts like a password and controls client access to a device or server. Without closed-loop network orchestration, the configuration change associated with this community string change may take a long time for operations to manually reconcile with a fault and event management component—if they reconcile the changes at all. Critical network personnel have to spend time addressing this issue, which increases the risk to ensuring service delivery and decreases the ability of operations to provision new services.

With the EMC Solution for Closed-Loop Network Orchestration, this common type of change wouldn't require any special, resource-intensive attention from operations. The configuration change would be automatically modeled for potential impact, reviewed, approved, executed, and validated for



compliance. In addition, the solution would then automatically reconcile the changes with the fault and performance management component. As a result, operations isn't unnecessarily diverted and spending time manually reconciling changes and clearing events—ensuring operational efficiency, which in turn reduces costs and decreases risk to service delivery.

Summary

With the EMC Solution for Closed-Loop Network Orchestration, service providers and managed service providers gain the realtime, integrated, and automated visibility and control that they need over their information infrastructure—and do so in terms of services delivered and business goals. This solution ensures that providers can—in a completely integrated and orchestrated manner:

- Discover and model the infrastructure—and map it to the services being delivered
- Analyze availability and performance problems and determine their root cause
- Change and remediate configurations
- Comply with governance, policy, and regulatory standards
- Automate processes and tasks, and integrate with other operational systems

Realtime automated analysis means that problems are identified faster—reducing downtime and speeding time to service restoration—and, most importantly, problems can be isolated before they become service-impacting. This significantly improves operating efficiency by reducing work center overlaps (typical when isolating problems across the infrastructure), which in turn allows operations experts to instead focus on solving real business problems or deploying new services that can grow revenue.

As a result, providers can:

- Ensure—and increase—the availability and quality of services delivered
- Gain immediate insight into how operations impacts the business
- Increase operational efficiency
- Reduce costs
- Manage IT complexity and change easily



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Take the next step

To learn more about how the EMC Solution for Closed-Loop Network Orchestration—and other EMC management solutions—can positively impact a service provider's business and IT operations, contact your local EMC sales representative or visit our website at www.EMC.com.