

Dell Telecom Infrastructure Automation Suite

Automate to accelerate your network cloud transformation

Benefits

- **Unify infrastructure management** by providing a common management plane that aligns with industry standards to simplify integration
- **Standardize to scale** by enabling a consistent and repeatable operating environment to reduce costs
- **Power AI with telemetry** by aggregating full-stack infrastructure telemetry to enable actionable insights



Infrastructure management today is a fragmented and manual process

Communications service providers recognise that cloud transformation is imperative, but transformation is easier said than done. CSPs running container-as-a-service software on industry standard servers are well aware of how fragmented and heavily reliant on custom integrations and manual scripting bare metal server management is. Consider some of the characteristics of today's approach:

- **Engineer-dependent integrations & script development.**
Despite the availability of numerous software tools to manage the CNF workflows and cloud platform software, there is a deficiency of automation tools with pre-configured workflows that streamline hardware management across multi-vendor environments. This compels CSPs to create and sustain their own integrations and scripts to automate infrastructure management.
- **Maintenance-heavy**
These custom integrations and scripts necessitate continuous maintenance and updates due to persistent changes in hardware and software. This includes software patches, firmware updates for NICs and PCI cards, operating systems, drivers, BIOS updates, and more. Different engineers using inconsistent methodologies lead to a lack of standardization, which can result in potential configuration errors affecting security, performance, and reliability.
- **Expertise-reliant**
These tasks require substantial engineering knowledge and support, which can be expensive and limited.

- **Day 2 challenges**

Guaranteeing consistency and managing upgrades becomes a complicated and error-prone process in diverse and distributed infrastructure environments.

- **Complex multi-vendor management**

Requirements for multi-vendor hardware and cloud platform software further contributes to the complexity, especially in maintaining consistency and managing daily operations.

- **Limited capability to aggregate infrastructure data for AIOps**

In large, distributed networks, it is often challenging to collect detailed metrics on the infrastructure to support AIOps and other monitoring applications that can decrease the time spent on troubleshooting fault and performance issues or proactively identify issues before they happen.

These challenges result in a process that is slow, cumbersome, and unsustainable, particularly considering the rapidly advancing pace of technological developments in the telecom industry. Woven through these challenges is the complexity of bare metal provisioning and lifecycle management that stems from several intricate and evolving requirements.

- **Deep, automated discovery at the hardware level**

This is crucial to maintain a comprehensive inventory of system configurations across a large fleet of servers, ensuring that each server's specifications and statuses are accurately documented and readily available.

- **Continuous server health and configuration monitoring**

This involves real-time tracking and management to ensure optimal performance and security.

- **Bios, firmware, driver, and operating system updates**

The ability to update BIOS, firmware, drivers, and operating system settings across numerous parameters, adds another layer of complexity. This not only requires technical expertise but also an understanding of hardware components specific to supporting telecom applications. Moreover, professionals managing bare metal servers must have the expertise to adapt to the constant changes in the hardware landscape. Staying updated with changes and integrating new hardware efficiently is crucial. Declarative automation becomes essential in this context, assisting in managing deployments and updates to server hardware seamlessly.

- **Integration**

Integration challenges also emerge with the need for bare metal provisioning systems to work with CI/CD tools and higher-level orchestration to enable true Zero Touch Provisioning (ZTP). This integration ensures automated deployment and update processes are efficient, error-free, and scalable.

- **AIOps**

AIOps applications require the aggregation of rich metrics from servers allowing them to simplify day 2 operations and avoid problems before they occur.

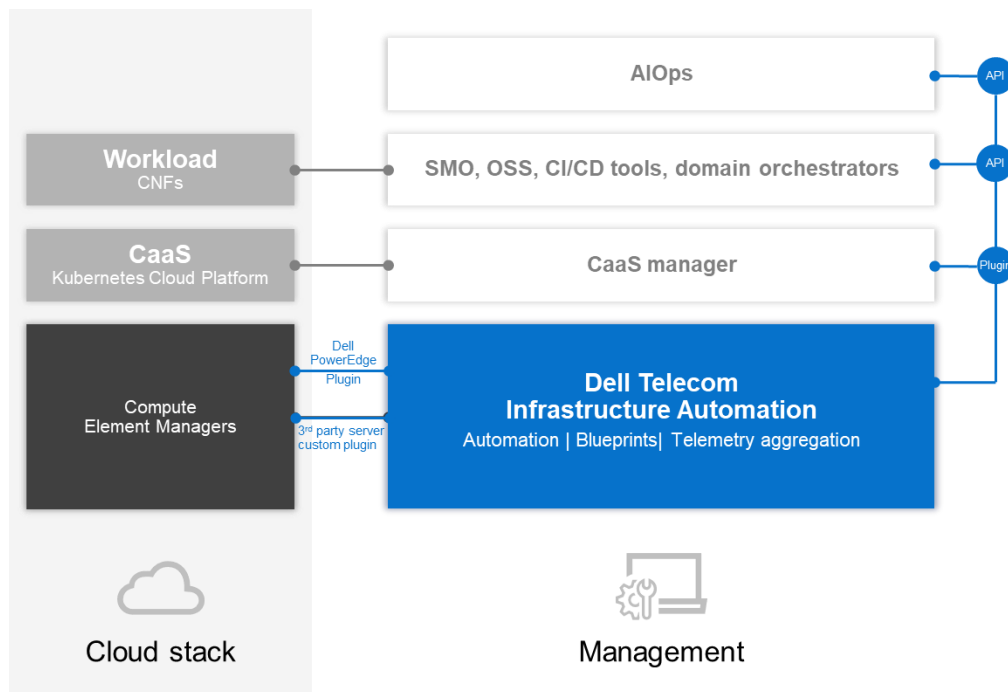
Dell Telecom Infrastructure Automation Suite: The automation solution for modern telecom networks

The Dell Telecom Infrastructure Automation Suite has been built from the ground up to address management challenges of modern network infrastructure.

The Suite replaces today's fragmented, engineering-intensive, manual approach to the management of cloud infrastructure with declarative automation and prebuilt workflows, significantly reducing dependency on custom integrations and playbooks and enabling a more efficient and less cumbersome management process. Specifically, the Suite integrates with the leading cloud platform software to automate the deployment, configuration lifecycle management of the cloud platform software, operating systems, and bare metal servers, reducing cost and ensuring optimal resource utilization. In addition, the Suite includes APIs and plugins that simplify integration with CI/CD tools and Service Management Orchestration to enable zero touch provisioning. These capabilities ultimately help you deliver new services faster.

Dell automation enables you to:

- **Unify infrastructure management** by providing a common management plane that aligns with industry standards to simplify integration
- **Standardize to scale** by enabling a consistent and repeatable operating environment to reduce costs
- **Power AI with telemetry** by aggregating full-stack infrastructure telemetry to enable actionable insights



*Items in Blue are part of the Dell Telecom Infrastructure Automation Suite

Dell Telecom Infrastructure Automation Suite is a software platform based on open standards and APIs that comprise four key components:

- **Infrastructure Automation & Telemetry**

At the heart of the Suite is automation which streamlines discovery, deployment, updates and more and telemetry aggregation which supplies rich metrics to support AIOps applications.

- **APIs**

APIs connect the Suite to domain orchestrators and CI/CD processes, and AIOps applications to seamlessly integrate with CSPs system management to enable true zero touch provisioning and simplify network operations.

- **Plug-ins**

Plug-ins connect the Suite to infrastructure resource controllers and CaaS managers and are available off-the-shelf or as custom builds to support multivendor server and CaaS environments. Custom plug-ins can be built in-house, with a systems integrator, or by Dell Services.

- **Blueprints**

TOSCA-based blueprints automate the implementation of workflows and intents via declarative automation, enabling consistency and ensuring processes are free of manual errors and delays. Dell offers basic blueprints, but customers can also create blueprints on their own or work together with Dell or a systems integrator. The use of TOSCA-based templates ensures that blueprints are portable, allowing them to be used across different environments with minimal modification.

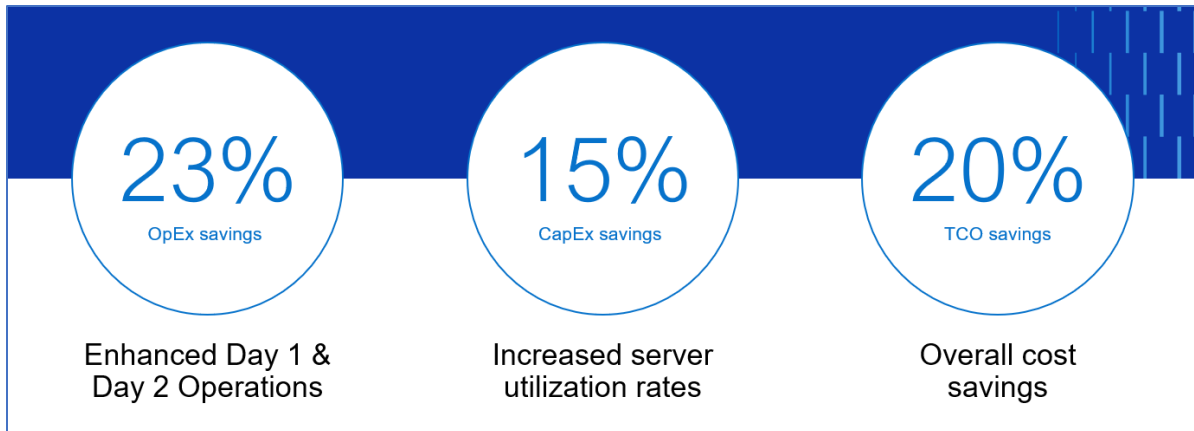
Ease your transformation and your mind with Dell Services

Plan and design	Deploy and integrate	Manage and support
<ul style="list-style-type: none"> • Collaborate in workshops to define business outcome • Develop tailored designs, blueprints and plug-ins • Fine-tune designs for peak performance, scalability, and cost-effectiveness 	<ul style="list-style-type: none"> • Simplify implementation based on designs, blueprints and plug-ins with remote install, configuration, and integration • Drive specific outcomes with custom integration to CSP workloads and automation • Northbound & southbound integration of solution components Integration to DevOps tools 	<ul style="list-style-type: none"> • Simplify upgrades, updates, rollbacks, and expansions • Comprehensive 24x7x365 proactive, predictive failure detection • Leverage dedicated telecom-trained account team with specialized insights and escalation processes

Integrating automation into complex, mission-critical telecom infrastructure is no easy feat. Dell Services can help. From the design phase to deployment to ongoing management and support, the Dell Services team is ready.

Projected savings across OpEx and CapEx

Dell worked with ACG Research to develop a TCO model of the business impact of utilizing Dell Telecom Infrastructure Automation Suite when deploying and maintaining a 5G Core network on Red Hat OpenShift growing from zero to 50 million subscriber over 5 years.



To learn more, see the [ACG Research Report: Reducing TCO with Dell Telecom Infrastructure Automation Suite](#)

Dell Technologies is the telecom industry's transformation partner of choice

- The pressure on CSPs to innovate and grow while controlling costs is relentless and the need for CSPs to transform is ever more acute. The time is now. With the Dell Telecom Infrastructure Automation Suite, CSPs can accelerate their cloud transformation, as they Unify infrastructure management by providing a common management plane that aligns with industry standards, standardize to scale by enabling a consistent and repeatable operating environment and power AI by aggregating full-stack infrastructure telemetry to enable actionable insights simplify bare metal management, scale operations, and leverage comprehensive telemetry – all enabling faster delivery of new services. Dell Technologies is a uniquely capable partner for network transformation. Our deep experience in cloud spans hundreds of companies across multiple industries and today we are partnering with CSPs to help them transform by building telecom-grade solutions. Since our founding, we have been completely committed to open technologies and every year our commitment grows even deeper. The future is open and we are ready to propel your telecom business forward.