HPE Telco Universal SLA Manager

HPE Telco Universal SLA Manager helps digital service providers to accelerate monetization of service quality by automatic control of individual SLAs

HPE Telco Universal SLA Manager is a solution that automates the management obligations between service providers and customers or suppliers of supported services. It addresses the operational processes associated with defining and managing the service-level agreement (SLA) compliance with customer contracts, as well as SLA modifications and service termination.

The solution defines, monitors, and reports on high numbers of SLAs and a wide range of possible SLA clauses such as time to deliver a service, compliance with service performance objectives, or trouble resolution mean time commitments.

The HPE solution provides the essential means to maintain and improve service quality, through a constant cycle of agreeing, monitoring, and reporting upon service achievements.

With HPE Telco Universal SLA Manager, it is possible to implement an SLA management solution that provides a flexible framework to help gradually address the following needs:

- Manage and improve service quality by creating accountability to the services contracted with or by multiple parties
- Provide management with SLA business data and dashboards
- Deliver consistent and improved communication process with partners and end customers
- Improve SLA accessibility, control, and visibility across organizations
- Report on service performance against contracted obligations
- Provide accurate SLA calculation from multiple application and business systems
- Reduce cost for efficient calculation of complex and updated SLA contracts terms
- Ensure better auditable process

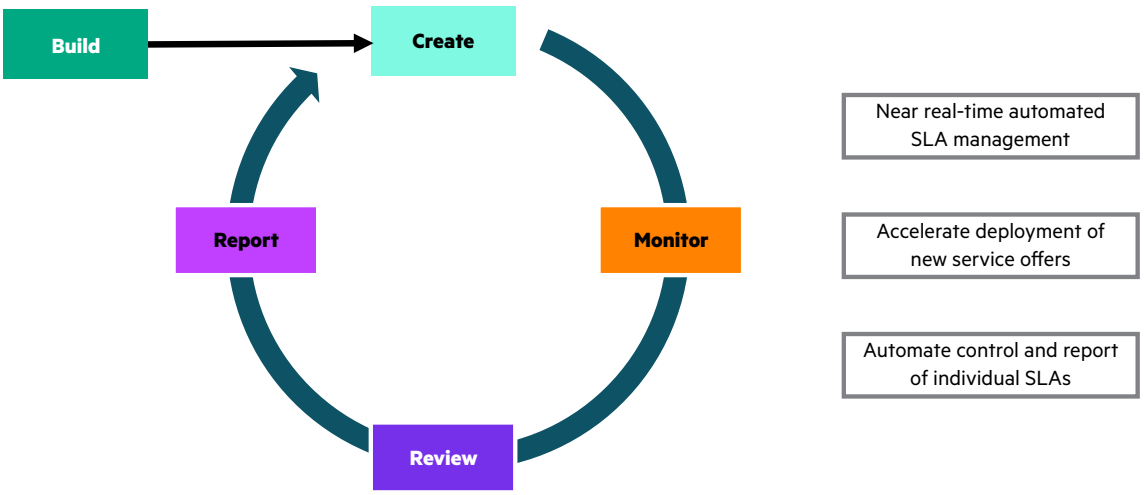


Figure 1. SLA management core activities

The HPE solution is pragmatic, as it creates a solid foundation for a service-level management journey that can be implemented according to any customer strategy and priority. Hewlett Packard Enterprise is then ready to provide necessary recommendations and guidance for this purpose.

As a universal solution, a centralized SLA management platform will leverage data available from many diverse possible existing applications:

- Network services downtimes from trouble ticketing systems
- Networks and services performance metrics
- Service operations metrics available from trouble ticketing or help desk

HPE Telco Universal SLA Manager separates the key processes and tasks involved in the day-to-day operations of SLAs. The application has been designed so that key processes in supporting the operations of SLA management are maintained by the right tool for the organizations in charge of them:

- Building SLA templates will typically be under the responsibility of OSS or IT engineering. Starting from marketing contract specifications, building SLA templates is about defining complete data flows to prepare for data acquisition, SLA metrics calculation, and evaluation. This helps ensure any new SLA that is created from a template complies with company policy and calculates right from the time it is activated.
- Creating or selling SLAs is about forming actual SLA objects in the platform and driving them through a predefined SLA lifecycle. Most of the time, SLA creation is done automatically by data loading the appropriate objects into the application. In case a sales or customer service person has to manually create a new SLA or make some changes to the specifications of an SLA before it is activated, the platforms provide the appropriate user interfaces to do so.
- SLAs monitoring provides service operations with a customizable real-time dashboard, to display the result and details of continuous calculation of active SLAs. In case an SLA status is degrading, crossing configurable thresholds for early warning, or a breached threshold, the platform generates a real-time event. Dedicated gateway or action executor modules will use such events to trigger specific actions such as external notification through alarms, emails, or tickets.
- Reviewing SLAs is about day-to-day management, entering maintenance, exclusions, as well as corrections through adjustment or raw data exclusions.
- Customer-facing organizations will rely on the reporting module to analyze, assemble, and present the details and evidence about the history of all SLAs managed with the platform. A secured customer portal with controlled access to user-defined reports scheduled to be automatically produced and communicated at the end of each contractual reference period.

Business benefits

With HPE Telco Universal SLA Manager, it is possible to implement an SLA management solution that provides a flexible framework to help gradually address the following needs:

Improve customer experience and brand image

- Controlled delivery of services
- Quality assured and proven solution
- Consistent communication with end users
- Better SLA accessibility, control, and visibility across the organizations
- Report on service performance against contracted obligations

Control financial risks

- Minimize SLA penalties
- Control and mitigate financial risks as part of the SLA management process in near real time
- Track customer or third-party providers' SLA or underpinning contract commitments and penalties

Enhance operational efficiency

- Allow agility and flexibility for negotiations with manual raw data management, exclusion management, and adjustment process
- Get shortened and accurate SLA reporting
- Lower risks and costs associated with traditional paper-based SLA management
- Reduce cost for efficient calculation of complex and updated SLA contracts terms
- Manage more contracts with the same resources
- Ensure better auditable process

Increment margin through standardization and automation

- Introduce more new SLAs quickly
- Reduce the backlog
- Improve brand identity—a perception of the service

Improve brand image

Be a trusted service provider

As the market is being more and more competitive, brand image and wide recognition to attract new customers and retain existing ones is a key and critical aspect of today's strategy communication service provider.

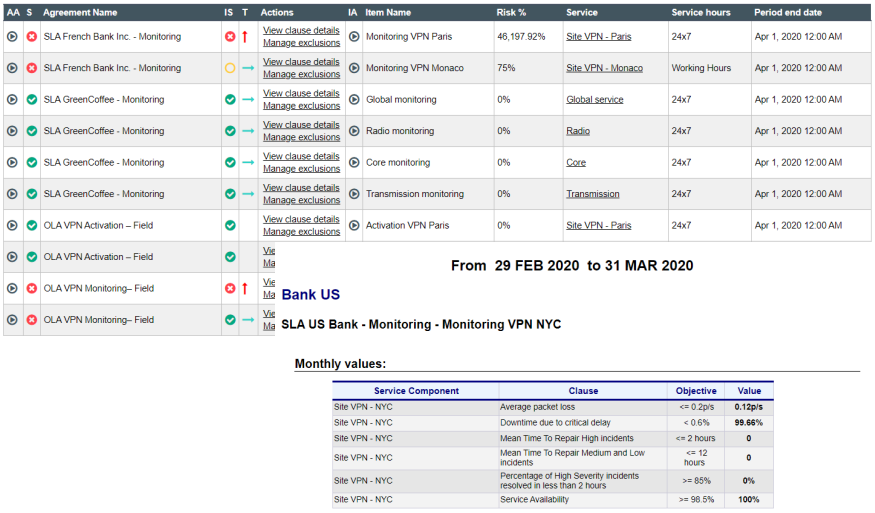
Customer recognition as a trusted and loyal service provider is a challenge for communication service providers.

The HPE Telco Universal SLA Manager solution helps:

- Provide scheduled, accurate, and regular reports on SLA commitments against actuals to customers
- Deliver controlled and auditable SLA calculation that meets the contractual obligations
- Allow and control with a dedicated workflow the business negotiations and adjustment outcomes for customers

Business benefits—key takeaway

- Gain brand recognition as a trusted provider
- Reduce customer churn
- Increase new customers acquisition due to wide recognition
- Integrate business negotiation inside the SLA management auditable



AA	S	Agreement Name	IS	T	Actions	IA	Item Name	Risk %	Service	Service hours	Period end date
		SLA French Bank Inc. - Monitoring			View clause details Manage exclusions		Monitoring VPN Paris	46,197.92%	Site VPN - Paris	24x7	Apr 1, 2020 12:00 AM
		SLA French Bank Inc. - Monitoring			View clause details Manage exclusions		Monitoring VPN Monaco	75%	Site VPN - Monaco	Working Hours	Apr 1, 2020 12:00 AM
		SLA GreenCoffee - Monitoring			View clause details Manage exclusions		Global monitoring	0%	Global service	24x7	Apr 1, 2020 12:00 AM
		SLA GreenCoffee - Monitoring			View clause details Manage exclusions		Radio monitoring	0%	Radio	24x7	Apr 1, 2020 12:00 AM
		SLA GreenCoffee - Monitoring			View clause details Manage exclusions		Core monitoring	0%	Core	24x7	Apr 1, 2020 12:00 AM
		SLA GreenCoffee - Monitoring			View clause details Manage exclusions		Transmission monitoring	0%	Transmission	24x7	Apr 1, 2020 12:00 AM
		OLA VPN Activation – Field			View clause details Manage exclusions		Activation VPN Paris	0%	Site VPN - Paris	24x7	Apr 1, 2020 12:00 AM
		OLA VPN Activation – Field			Vie Ma						
		OLA VPN Monitoring– Field			Vie Ma						
		OLA VPN Monitoring– Field			Vie Ma						

From 29 FEB 2020 to 31 MAR 2020

Bank US

SLA US Bank - Monitoring - Monitoring VPN NYC

Monthly values:

Service Component	Clause	Objective	Value
Site VPN - NYC	Average packet loss	<= 0.2p/s	0.12p/s
Site VPN - NYC	Downtime due to critical delay	< 0.6%	99.66%
Site VPN - NYC	Mean Time To Repair High incidents	<= 2 hours	0
Site VPN - NYC	Mean Time To Repair Medium and Low incidents	<= 12 hours	0
Site VPN - NYC	Percentage of High Severity incidents resolved in less than 2 hours	>= 85%	0%
Site VPN - NYC	Service Availability	>= 98.5%	100%

Figure 2. SLA compliance dashboard and SLA contractual report

Control financial risks

Business impact management to reduce financial risks

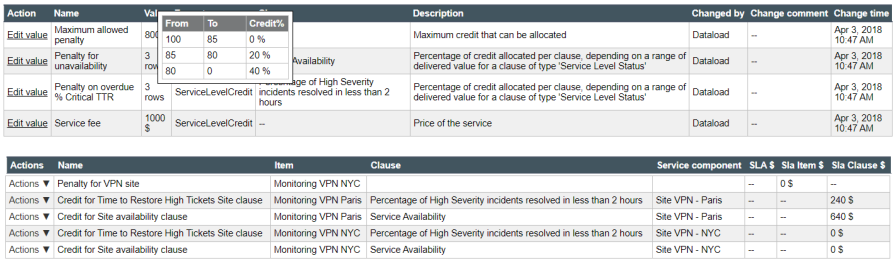
Selling SLAs on top of traditional services comes along with credit back to the customer when commitments are not achieved. The HPE Telco Universal SLA Manager solution defines and monitors the SLA business impact rules as part of the SLA monitoring. The business impact (such as customer credit back, satisfaction, and penalties) monitoring is a crucial aspect to control capital expenses and potential loss of revenues when selling customer SLAs. HPE Telco Universal SLA Manager also monitors underpinning contracts with third-party providers and gets revenue back from them in the same tool.

Business benefits—key takeaway

- Control and mitigate financial risks as part of SLA management process in near real time
- Track customer or third-party providers SLA or UC commitments and penalties
- Manage business impact of customer SLAs with customizable rules, parameters, and thresholds

The HPE Telco Universal SLA Manager solution:

- Monitors in near real time the business impact associated with customer SLAs, based on business impact rules and templates, along with third-party underpinning contracts. With a specific user interface, the solution helps to highlight the contractual penalties and drills down faulty clauses
- Manages and alerts through email or through events the status and business impact value to minimize the risk of breaching the SLA and prevents any overpayment for credit back
- Offers a specific interface to manage the business impact rules and parameters management per SLAs



Action	Name	Val			Description	Changed by	Change comment	Change time
Edit value	Maximum allowed penalty	800			Maximum credit that can be allocated	Dataload	--	Apr 3, 2018 10:47 AM
Edit value	Penalty for unavailability	3 row		Availability	Percentage of credit allocated per clause, depending on a range of delivered value for a clause of type 'Service Level Status'	Dataload	--	Apr 3, 2018 10:47 AM
Edit value	Penalty on overdue % Critical TTR	3 rows	ServiceLevelCredit	age of High Severity incidents resolved in less than 2 hours	Percentage of credit allocated per clause, depending on a range of delivered value for a clause of type 'Service Level Status'	Dataload	--	Apr 3, 2018 10:47 AM
Edit value	Service fee	1000 $	ServiceLevelCredit	--	Price of the service	Dataload	--	Apr 3, 2018 10:47 AM

From	To	Credit%
100	85	0 %
85	80	20 %
80	0	40 %

Actions	Name	Item	Clause	Service component	SLA $	Sla Item $	Sla Clause $
Actions ▼	Penalty for VPN site	Monitoring VPN NYC			--	0 $	--
Actions ▼	Credit for Time to Restore High Tickets Site clause	Monitoring VPN Paris	Percentage of High Severity incidents resolved in less than 2 hours	Site VPN - Paris	--	--	240 $
Actions ▼	Credit for Site availability clause	Monitoring VPN Paris	Service Availability	Site VPN - Paris	--	--	640 $
Actions ▼	Credit for Time to Restore High Tickets Site clause	Monitoring VPN NYC	Percentage of High Severity incidents resolved in less than 2 hours	Site VPN - NYC	--	--	0 $
Actions ▼	Credit for Site availability clause	Monitoring VPN NYC	Service Availability	Site VPN - NYC	--	--	0 $

Figure 3. Business impact parameter management and business impact view

Integrate exceptions in SLA management processes

Track, store, manage, and audit SLA negotiations and exceptions with top customers

Business benefits—key takeaway

- Integrate negotiation process in your SLA management
- Integrate manual raw data correction as part of SLA management capabilities
- Offer an integrated way to manage exclusions and exceptions
- Easily define and automatically compute indicators taking into account different time zones, holidays, and business hours

Integrating time exclusions such as business hours, country-based holidays, or per-contract exclusion due to unforeseeable incidents are challenges when calculating SLA compliance. Sometimes, SLA calculations are technically correct, but a customer, supplier, or service provider requests some changes. Such changes have to go through a negotiation process and need to be approved before amended data can finally be reported and archived.

The HPE Telco Universal SLA Manager solution offers the capability to define and manage time exclusions and allows operations to integrate negotiated SLA adjustments in the automated calculation process. The product also provides dedicated functions to manually manage raw data corrections, for example, the capability to exclude, or update a trouble ticket impacting an SLA.

The HPE Telco Universal SLA Manager solution:

- Tracks and reports SLA compliance and calculates business impact to get a controlled document that can be the base for negotiation
- Provides a specific user interface to enter adjustment and negotiation's outputs, as well as data correction management. This offers, with the embedded approval process, a controlled and auditable negotiation process
- Supports business or service hour schedules, as well as holiday calendars
- Manages contractual exclusions, planned maintenance, and raw data corrections with automatic recalculation of SLA

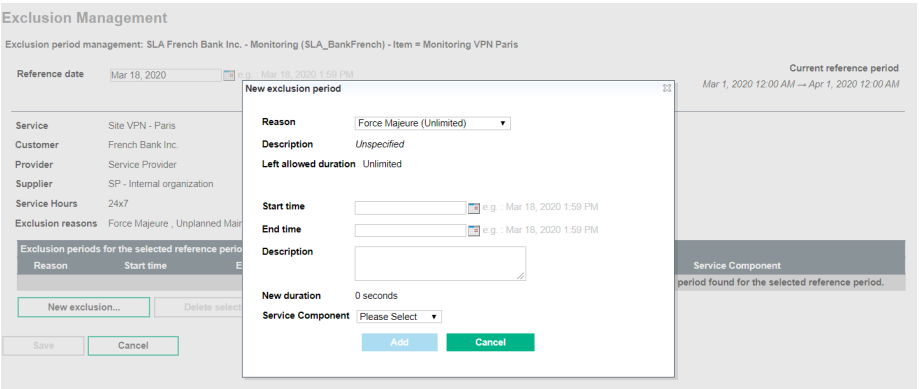


Figure 4. Exclusion management

Enhance operational efficiency

Near real-time SLA compliance monitor, drill down, and detailed report

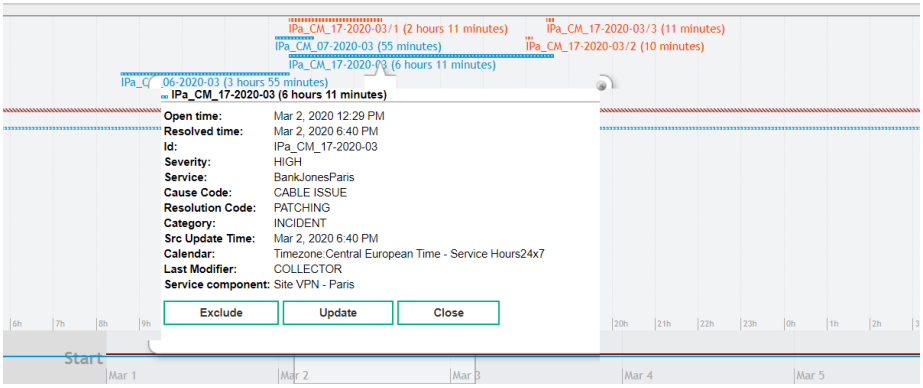
Business benefits—key takeaway

- Real-time SLA dashboards with accurate view of computed SLA compliance and clauses values
- Graphical drilldown to clauses calculation, downtimes, faulty performance KPIs, or other data used to calculate the SLA clauses
- User management with rights and roles to provide accurate views to stakeholders

To allow SLA managers to focus on critical SLAs or customer issues, the HPE Telco Universal SLA Manager solution offers near real-time visibility on SLA status that proactively detects and solves affecting issues. It also provides breach analysis of SLA clauses with graphical drill down to pinpoint and understands SLA degradations or breaches.

The HPE Telco Universal SLA Manager solution:

- Monitors SLA compliance in real time through a dedicated interface, with filtering and sorting capability. It also provides access to a business impact view, allowing proactive and reactive actions to prevent breaches of SLA compliance
- Allows users to understand and drill down to raw data, to comprehend the reason and time frame in which SLA degradations might occur and provides detailed information on the data used to compute the SLA clause indicator
- Improves SLA accessibility and visibility across the organizations, with user access rights and roles that provide a clear and dedicated view for the chosen users



Select	Actions	Id	Open time	Resolved time	Time to resolve	Indicator status	Severity	Cause Code	Resolution Code	Category	Sub ticket count
	Exclude Update Visual time based analysis	IPa_CM_01-2020-03	Mar 1, 2020 7:45:00 AM	Mar 1, 2020 7:59:00 AM	14 minutes	OK	HIGH	CONNECTOR ISSUE	PATCHING	INCIDENT	0
	Exclude Update Visual time based analysis	IPa_CM_07-2020-03	Mar 2, 2020 12:10:00 PM	Mar 2, 2020 1:05:00 PM	55 minutes	OK	HIGH	SWITCH ISSUE	PATCHING	INCIDENT	0
	Exclude Update Visual time based analysis	IPa_CM_117-2019-10	Oct 16, 2019 5:29:00 PM		153 days 21 hours 40 minutes	Critical	HIGH	CABLE ISSUE	PATCHING	INCIDENT	0
	Exclude Update Visual time based analysis View Subs	IPa_CM_17-2020-03	Mar 2, 2020 12:29:00 PM	Mar 2, 2020 6:40:00 PM	2 hours 32 minutes	Critical	HIGH	CABLE ISSUE	PATCHING	INCIDENT	3

Figure 5. Timeline drill down impacting ticket record list

SLA synthesis and analysis

Leverage historical SLA data to create synthetic business and comprehensive analysis reports

Customer-facing organizations need to rely on a reporting module to analyze, assemble, and present the details and evidence about the history of all managed SLAs. This reporting system also supports the service improvement plan process with SLA history-related data and reports.

The HPE Telco Universal SLA Manager solution provides:

- A library of on-the-shelf reports on different categories. The reporting system allows easy customization and creation of report templates and dashboards
- History-related data that analyzes and provides content for service improvement plan and business intelligence analysis
- A complete solution to share and visualize reports, export in PDF format or Excel formats, schedule the generation of reports, and send them through email

Business benefits—key takeaway

- Library of predefined reports template (>40)
- Full reporting system to create customized or new reports for historical analysis or synthetic dashboards
- Capability to schedule mass production of SLA reports in several formats

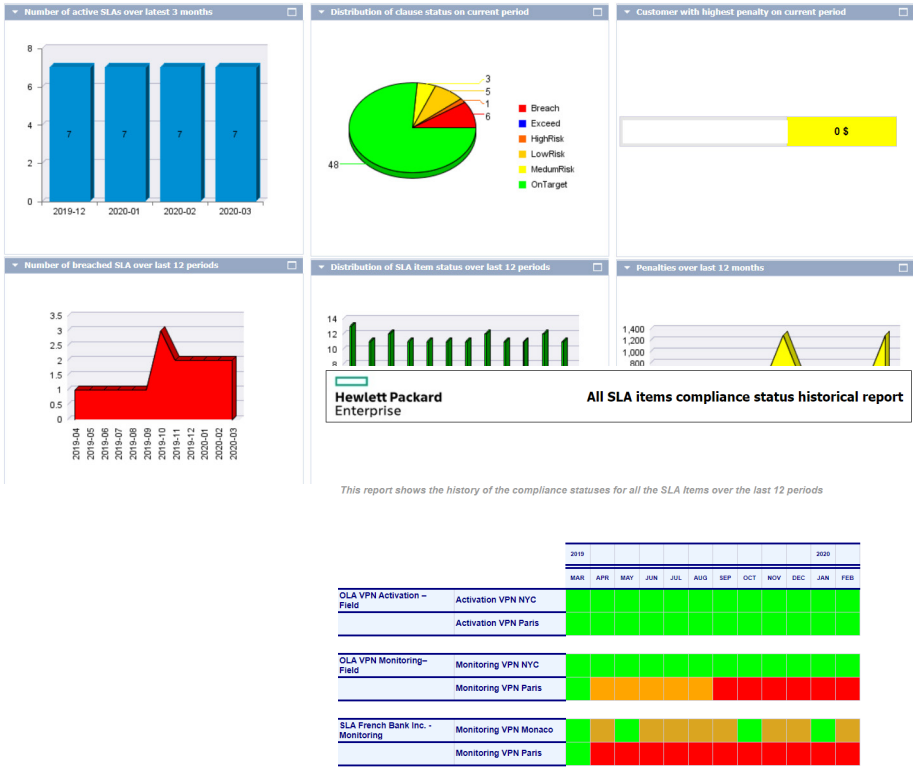


Figure 6. The HPE Telco Universal SLA Manager reporting dashboard and example of SLA historical report

Standardize to offer a comprehensive offering

SLA standardization to grow

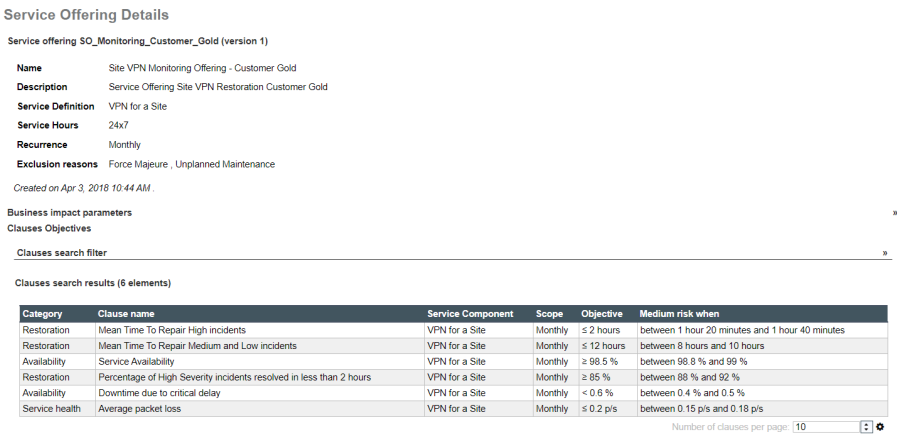
Business benefits—key takeaway

- Enable through standardization, templates, and automation for the potential increase of SLAs to manage in one tool
- Increase average revenue on top on traditional service
- Provide standardization of service offering catalog for comprehensive and auditable SLA calculation and reporting

To enable market expansion in medium businesses, SLA standardization and normalization are key aspects to address. HPE Telco Universal SLA Manager is a highly scalable platform designed to standardize and automate the operations of a large number of SLAs (more than 250K) significantly reducing the need for costly and error-prone manual intervention.

The HPE Telco Universal SLA Manager solution:

- Offers a predefined set of SLA commitments such as service availability, mean time to restore or time to provision or activate the service that increases the revenue per service according to the promised commitments
- Creates template SLAs to enable comprehensive and auditable service offering
- Expands traditional top customers' SLA offerings to the SMB market and offers the capability to automate SLA creation, calculation, and reporting of these SLAs



Service Offering Details

Service offering SO_Monitoring_Customer_Gold (version 1)

Name	Site VPN Monitoring Offering - Customer Gold
Description	Service Offering Site VPN Restoration Customer Gold
Service Definition	VPN for a Site
Service Hours	24x7
Recurrence	Monthly
Exclusion reasons	Force Majeure , Unplanned Maintenance

Created on Apr 3, 2018 10:44 AM .

Business impact parameters

Clauses Objectives

Clauses search filter

Clauses search results (6 elements)

Category	Clause name	Service Component	Scope	Objective	Medium risk when
Restoration	Mean Time To Repair High incidents	VPN for a Site	Monthly	≤ 2 hours	between 1 hour 20 minutes and 1 hour 40 minutes
Restoration	Mean Time To Repair Medium and Low incidents	VPN for a Site	Monthly	≤ 12 hours	between 8 hours and 10 hours
Availability	Service Availability	VPN for a Site	Monthly	≥ 98.5 %	between 98.8 % and 99 %
Restoration	Percentage of High Severity incidents resolved in less than 2 hours	VPN for a Site	Monthly	≥ 85 %	between 88 % and 92 %
Availability	Downtime due to critical delay	VPN for a Site	Monthly	< 0.6 %	between 0.4 % and 0.5 %
Service health	Average packet loss	VPN for a Site	Monthly	≤ 0.2 p/s	between 0.15 p/s and 0.18 p/s

Number of clauses per page: 10

Figure 7. Service offering details

Automation and integration

Automate processes from SLA creation to reporting

Business benefits—key takeaway

- Automation capabilities from collection to reporting
- Collection framework, action executor framework, and data load API to ease integration in OSS/BSS environments
- User management with implicit filters, roles, and rights
- LDAP integration through configuration for user authentication delegation

The capability to integrate the SLA management tool into existing OSS and BSS environments is a key success factor for a comprehensive solution.

The HPE Telco Universal SLA Manager solution:

- Automates collection and calculation due to a data collection framework that will inject in near real time new raw data and updates. SLA calculation is then triggered to provide an accurate and real-time view of the SLA compliance through the near real-time web user interfaces.
- Configures alerts on SLA, clauses, and business impact compliance thresholds, and offers an action-executor framework for customizable, automated actions, and notifications. Mail and SNMP action executors are available off-the-shelf.
- Automates SLA creation, providing a data load API working in near real time or batch mode, and controlling customers, new services, SLA updates, and the entire SLA lifecycle. The SLA reporting module also offers a way to schedule the production of reports.
- Delegates the user authentication process to an enterprise LDAP system through configuration. It also provides user role and rights management and restricts user access to specific objects using implicit filters automatically applied after authentication.

HPE Unified OSS Console integration

A dashboard for every need, every role

Business benefits—key takeaway

- Offer consolidated, customized, and specific views for operators depending on their rights and roles
- Provide single interface for different underlying OSS applications
- Get a highly configurable user interface

The HPE Telco Unified OSS Console solution provides a customizable dashboard, allowing to gather in a single user interface, set of information coming from different OSS systems, configurable for different users and roles within a communication service provider's operations organization.

Virtually any kind of data can be consolidated and presented through a dashboard view, allowing blending events, metrics, customized maps, topology/geographic views, and business service management or service-level management information.

Highly configurable and extremely easy to use, it is simple to assemble views using metric, event, and basic (shape) widgets. Graphs, gauges, metrics, and maps can be easily associated to show the performance of a specific device, network, or server and dashboards use standard color-coding definitions to indicate levels of severity.

The following HPE Telco Unified OSS Console functions are available for customers and integrators of the solution to benefit customization capabilities.

The HPE Telco Universal SLA Manager solution offers some SLA dashboards to be integrated into the HPE Unified OSS Console such as SLA summary view, SLA historical, and SLA details to drill down customer and services catalog and service offering catalog.

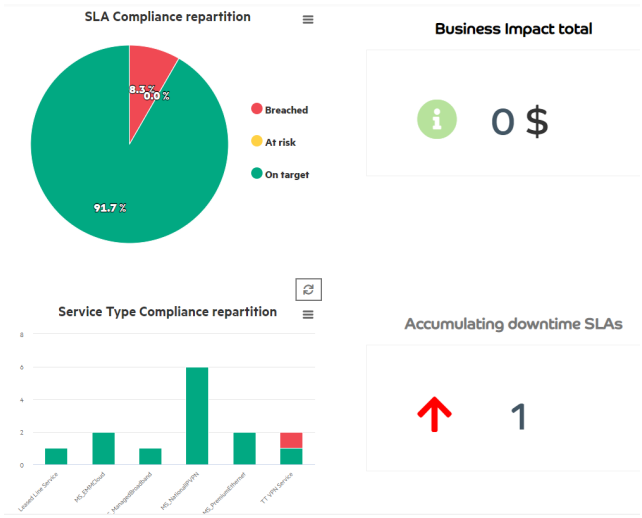


Figure 8. SLAs dashboard

HPE Telco Universal SLA Manager in the OSS ecosystem

HPE Telco Universal SLA Manager is designed to automate the SLA creation and computation process to support business agility. It can be integrated with HPE Telco Service Assurance solutions and HPE Telco Service Director to automate the SLA lifecycle and enrich the network and service operations with a customer and business perspective.

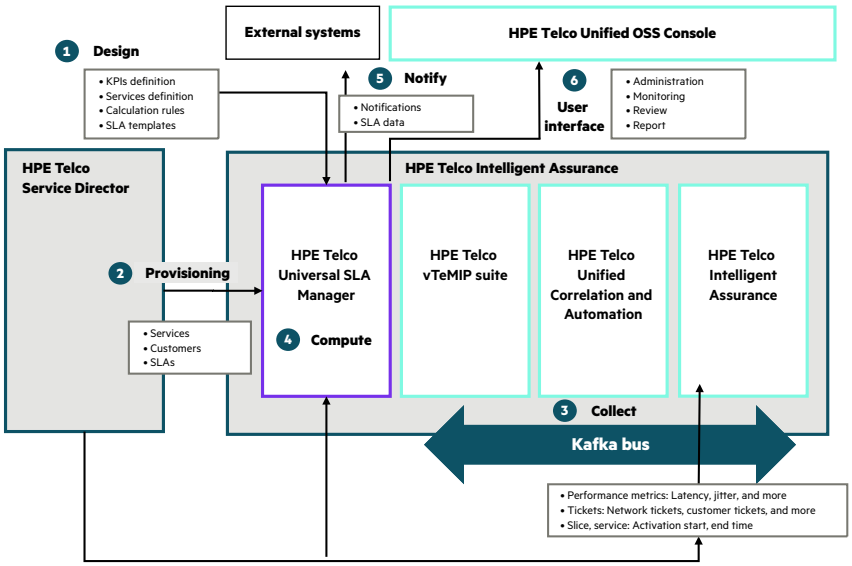


Figure 9. HPE Telco Universal SLA Manager with HPE Telco Service Assurance and Orchestration

The process from SLA design to report can be described by the following steps:

1. **Design:** Plan the contract, the different KPIs needed for the calculation, the rules defined for the calculation, as well as the SLA templates (class of service)
2. **Provisioning:** HPE Service Director creates customers, services, and SLAs (with associated templates)
3. **Collection:** Collection of relevant KPIs from trouble ticket systems
4. **Computation:** Calculation of SLA clauses defined in the template such as time to resolve (TTR)
5. **Notification:** Provide action executor framework, as well as REST API to provide SLA data
6. **Visualization:** Provide native web user interface with HPE Unified OSS Console, dashboards, views, and workspaces to administrate, monitor, review, and report on SLAs for internal teams, customers, or partners

This process is in line with emerging standards of the telecommunication industry, with clearly separated design time, runtime, and closed-loop automation capabilities.

Monetize service quality—Automate SLA management

The telecommunications market is moving from manually handled high-value SLA contract to mass-market digital enterprise business services. Also, 5G is expected to support a wide range of new services that will be offered by the digital service providers and increasingly by the over-the-top (OTT) providers. These services will not only serve consumers but also enterprises and governments. The 5G services will range from consumer mobile broadband to some very specific use cases such as highly secured government networks and highly reliable, low-latency remote surgery services, with commitments on the quality of services delivered. The need for automated monitoring and reporting commitments to the customer is critical. Standardization and automation become essential to monitor and guarantee the 5G slice commitments.

The HPE Telco Universal SLA Manager fully integrated in the OSS ecosystem brings the business and financial impact in the center of the network and services operations. It provides a scalable solution to manage in near real time large volume of SLAs.

Technical specifications

Operating system:

- Red Hat® Enterprise Linux® on bare metal or in virtual machine

Third-party prerequisites:

- Oracle® or EnterpriseDB Postgres Plus Advanced Server

HPE Telco Service Assurance solutions

HPE Telco Universal SLA Manager is part of a comprehensive integrated portfolio of Telco Service Assurance solutions and services that help digital service providers meet business and customer expectations while providing sophisticated features that improve service and network operations efficiency. These integrated solutions provide visibility of the actual customer experience and its relation to the health of telecom, IT, and IP network/services. It automatically triggers incident and problem management processes to handle any customer, service, or network issues.

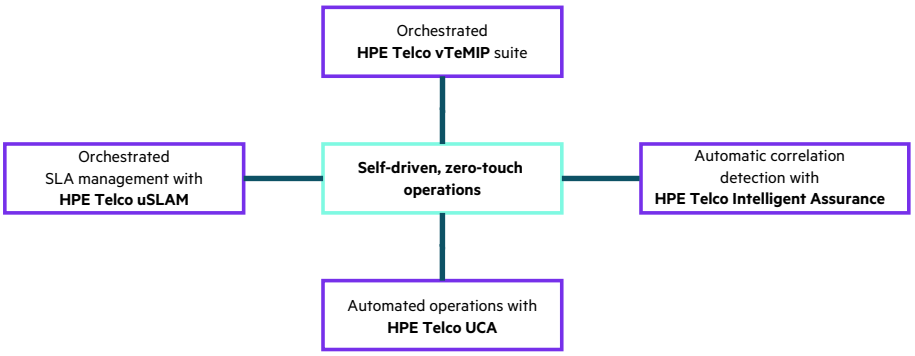


Figure 10. HPE Telco Service Assurance—self-driven, zero-touch operations

HPE Telco Solutions

HPE Telco Solutions are dedicated to creating vertical solutions for the communications and media industry. With over 30 years of experience in the industry, we have over 50 solutions, over hundred active contracts, and more than 300 telco customers in 160 countries. We provide software and services that enable digital transformation, automate operations, and help grow the business with innovative cloud-native network solutions and digital, 5G-ready services.

About HPE

HPE is the edge-to-cloud company that helps organizations accelerate outcomes by unlocking value from all of their data, everywhere. Built on decades of reimagining the future and innovating to advance the way people live and work, HPE delivers unique, open, and intelligent technology solutions, with a consistent experience across all clouds and edges, to help customers develop new business models, engage in new ways, and increase operational performance.

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