

Solution overview

Optimize SIM costs

HPE Dynamic SIM Provisioning



Hewlett Packard
Enterprise

Reduce costs and improve margins by simplifying your SIM supply chain. This dramatically decreases your cost per SIM card and increases your agility in provisioning required resources as needed, in real time for new subscribers activating their SIM card.

Concrete cases show that at least 25 percent of SIM inventory size can be reduced when deploying HPE Dynamic SIM Provisioning Solution. In other words, CSPs can run their operations, with at least 25 percent less SIMs and related network resources, by streamlining operations and introducing the concept of universal SIM.

This means at least \$1.5 million can be saved for every million SIMs in inventory—with the average total cost of ownership of \$6 per SIM when including shipping cost, HSS/OSS/BSS, CAPEX and OPEX, numbering fees, and other expenses.

Furthermore, HPE Dynamic SIM Provisioning Solution reduces the total cost of ownership of inactivated and sleeping SIMs by two-thirds, saving \$4 for every SIM card produced until they are activated or reactivated as in the case of the sleeping SIMs. Our clients point out that 20 percent to 40 percent of activated SIMs are, in fact, turned over time into sleeping SIMs.

Assign network resources when needed

To increase average revenue per user and average margin per subscriber, communications service providers (CSPs) must maximize their network potential. Until now, a preprovisioning method was used for subscriber identity module (SIM) cards. It forced management of SIM card inventories by preassigning numbering plans and preprovisioning network systems—home location register (HLR), customer care, and prepaid or postpaid billing platforms—before activation or getting revenues. The same also applies to new growing segments like the Internet of Things (IoT), causing an even more significant impact on the inventory level while expecting lower revenue per active subscription.

Decrease your costs

Now there's an answer—HPE Dynamic SIM Provisioning (HPE DSP) product components. It decreases your total cost of SIM card ownership, and builds a control point to deliver efficiency and flexibility into your SIM supply chain. It also limits churn and improves customer retention and satisfaction, with room for value-added services.

With this Hewlett Packard Enterprise (HPE) solution, you can activate new SIM cards in real time by:

- Allocating International Mobile Subscriber Identity (IMSI) and Mobile Station International Subscriber ISDN Numbers (MSISDNs)
- Associating the SIM with HLR/home subscriber server (HSS) and other business support systems (BSS)/operations support systems (OSS)
- Attaching an offering or tariff when it's used the first time

This frees up valuable and costly resources, so they're not "blocked" unnecessarily, since only revenue generating active subscribers get provisioned on the network and resources required for them are allocated at that same time.

You can also further reduce SIM card related costs. For example, subscribers with no or low traffic can be considered as sleeping SIMs and be temporarily decommissioned from the HLR/HSS and other BSS/OSS. They can be placed in dynamic SIM provisioning inventory until they reconnect to the network. This avoids the cost of maintaining SIMs in OSS/BSS when not active or in the case of a new SIM for a prepaid customer. It can also limit churn, as a customer is invited to reuse the existing CSP SIM card with immediate activation.

Benefit from universal SIM

With HPE Dynamic SIM Provisioning Solution, you can implement the concept of universal SIM—SIM cards distributed as generic and made specific at activation. This removes the need for specialized SIMs in inventory. It also simplifies launching new services and reduces time to market. And your subscribers can dynamically select their number or subscription options at their first connection with your network, a unique opportunity to capture customer attention and offer more personalization.

CSPs around the globe use HPE Dynamic SIM Provisioning Solution—a reliable, flexible, and future-proof solution—to provision hundreds of thousands of SIM cards every day.

“There is an interesting move toward wearable devices as companions to smartphones and other mobile devices, such as smartwatches, health bands, glasses and smart clothes, which present a growth area for smart-card suppliers and mobile network operators.”

– Don Tait, senior analyst, IHS Technology.

Allocate resources only to active SIMs

Only active SIM cards, those using network resources above a given threshold—are allocated to OSS/BSS resources with HPE Dynamic SIM Provisioning Solution.

Become leaner

Gain wider marketing control of SIMs, devices, and services while simplifying your SIM card supply chain and reducing SIM inventory costs in the supplier or retail chain:

- Avoid MSISDN costs for inactive SIM cards and control consumption, as MSISDN pools are a scarce service provider resource.
- Avoid unproductive HLR/HSS and BSS/OSS capacity costs, improve network resource use, and maximize network efficiencies by associating the SIM with the appropriate HLR/HSS.
- Reduce the number of SIMs needed to support a marketing plan by reducing the number of different SIM card product lines and allocating a tariff at first use.
- Avoid duplicated geographical stock by removing static dependency on geographical numbering or HLR/HSS planning.
- Automate, personalize, and increase agility during the SIM activation process.

You also can participate in new opportunities, such as premium number monetization—vanity and gold/platinum numbers—and support embedded SIM cards in devices that include laptops, preconfigured handsets, vehicles, and sensors, and further with IoT. With HPE DSP, you can also implement new processes required—as part of SIM/ID registration, as requested by Telecom Regulator—during the SIM activation process.

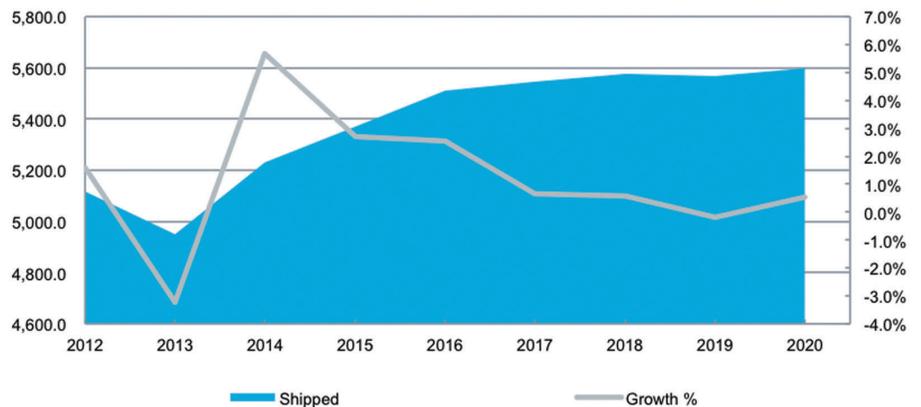


Figure 1. World SIM Card shipment (millions) and growth rate (Source IHS—04/2016)

“The rising number of these devices in the market is an opportunity for operators and card suppliers to increase SIM penetration for both pluggable and embedded form factors.”

– Don Tait, Senior Analyst, IHS Technology.

HPE Dynamic SIM Provisioning Solution supports the following scenarios:

- Number and resource management—SIM numbers
- SIM production management—SIM vendor and packing management
- Dealer management—Accounting and SIM ordering
- SIM over-the-air (OTA) management—Remote file management (RFM), remote application management (RAM), OTA, over HTTP(s), and SMS
- Sleeping SIMs—Identification, deprovisioning, and reactivation
- e-Registration—ID scan, biometrics
- Point of Sale (PoS) SIM personalization—WARM/active SIM management by PoS personnel
- eUICC/subscription management—GSMA subscription management, self-care portal, and eUICC lifecycle management
- Multi-international mobile subscriber identity (IMSI) roaming—Dynamic IMSI management, IMSI switch, roaming and fallback applet

Table 1. DSP use cases

Use case	Example	Business issue	DSP contribution
Prepaid/postpaid campaigns consuming too many MSISDNs	Regulatory body scrutinizing use of MSISDNs	Shortage of MSISDN or higher number fee	MSISDNs only allocated to active cards; overall pool, allocated by Telecom Regulator, is managed
Geographically-driven resource allocation	MSISDN plans and HLR specialized per region	Large SIM card stock and un-optimized network resource	MSISDN and HLR selected based on geographical information collected
Un-optimized SIM distribution chain	SIMs stolen before being delivered to stores	Revenue losses due to fraud, customer complaints	SIMs enabled after distribution
Planned massive introduction of SIM cards	IoT introduction	Cost of the SIM inventory is too high	SIMs produced without the cost of MSISDN and HLR licenses
Number selection as a market requirement	“Lucky number” or vanity number selection	With preallocated numbers, subscriber choice is limited to the current stock	Number allocated dynamically at the time of the first attachment
Sleeping SIM cards	Customers on production HLR below activity threshold	Network resource is unused	Sleeping cards are deprovisioned from production HLR and hosted in DSP until the next activation
LTE introduction	CDMA carriers engaging on LTE	Universal SIM activation as a new topic for the carrier	Seamless introduction of (U)SIM
MVNO introduction	Carriers opening their networks to MVNO	Cost of managing the network in a MVNO growth mode	Cost only occurs when SIMs are activated
e-Registration	SIMs need to be linked with a verified ID to be activated	Manual process	Automated registration

Review the components

This solution is modular and customizable. Changes can be carried out quickly in line with your requirements. And if changes are made in one subsystem, the whole architecture will not change. Further, the solution is highly scalable and future-proof to meet tomorrow’s needs.

The HPE Dynamic SIM Provisioning Solution has cutting-edge components that enable seamless SIM provisioning and activation:

- Web Graphical User Interface (GUI) manages the entire provisioning system and user management module to store users’ information, providing real-time reports on inventory status.
- Workflow Manager inherits HPE Service Activator (HPE SA) technology, which includes HPE Workflow Designer, HPE Workflow Execution Environment, and built-in plug-ins for different components. All DSP modules are built with off-the-shelf workflows that can be rapidly customized to the case, with no changes on the architecture.
- Production System Adapters interface with the operator production system for activation inward.
- Inventory maintains a required repository of resource information.
- Workflows are built to match client requirements—points-of-sale activation, automated activation, B2B portal, and more—based on detection, allocation, provisioning, and handover templates.

- First Time Attach provides real-time subscriber authentication during initial detection and delivers an initial subscriber profile to the visitor location register (VLR) during the provisioning process.
- HPE Multimedia Service Environment—Message Gateway for USSD/MAP provides support for unstructured supplementary service data (USSD) interaction when required during the provisioning process as executed by the HPE Workflow Manager—providing location, status, and International Mobile Equipment Identity (IMEI) information to the workflow obtained from MAP queries.
- HPE Multimedia Service Environment—Message Gateway for SMS—text and binary—to the SIM and subscriber during the provisioning process. The handover process is executed by the HPE Workflow Manager. The SMS gateway offloads the production short message service center (SMSC) from SMS traffic and ensures real-time transactions, using its first delivery attempt technology.
- HPE DSP—SIM Updater builds secured OTA commands when there is a need to update the IMSI and other parameters on the SIM card during the provisioning process executed by the HPE Workflow Manager. In other words, DSP SIM Updater supports and manages STK SIM applets and S@T.

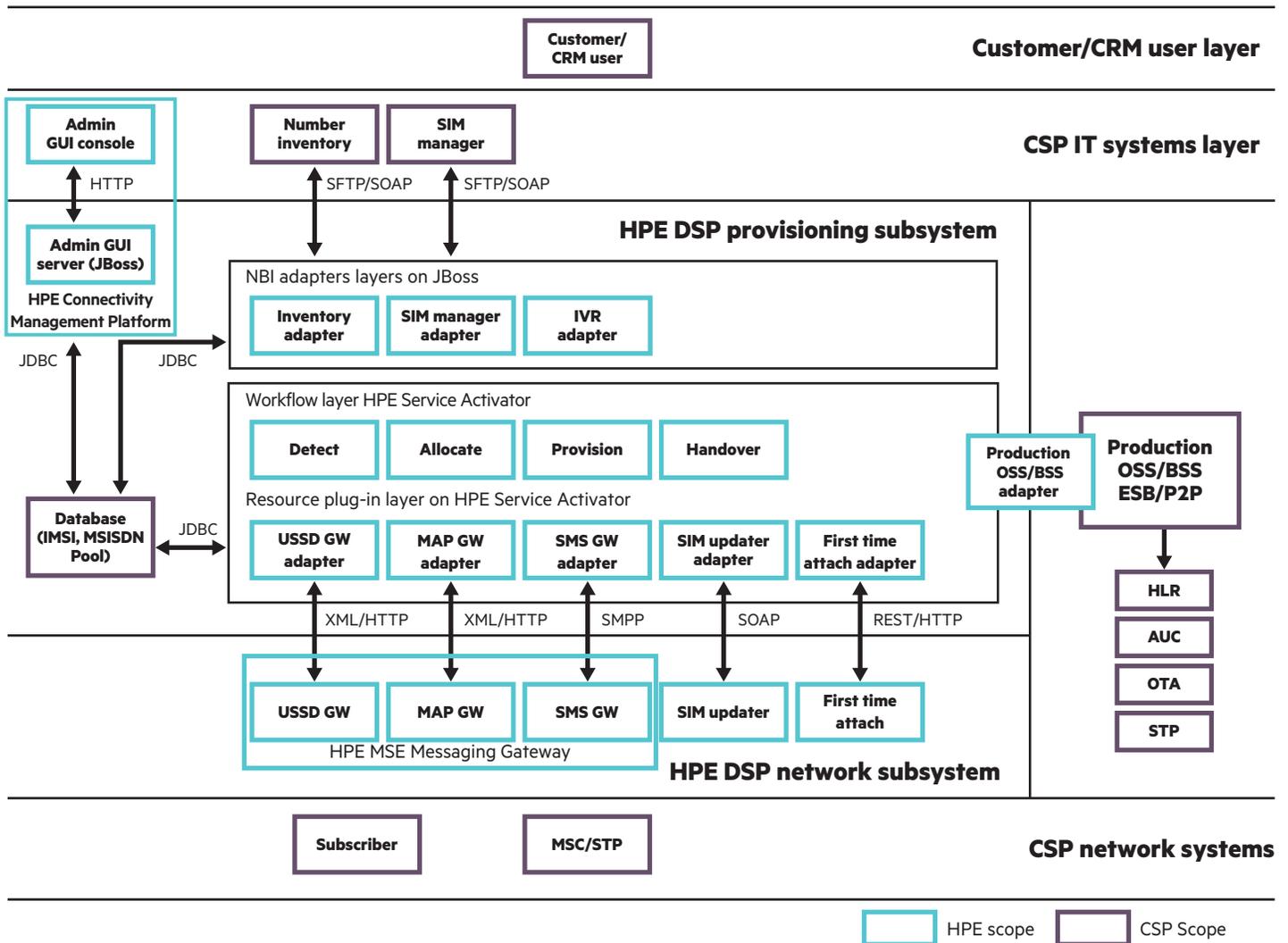


Figure 2. HPE Dynamic SIM Provisioning architecture

Gain these features and benefits

Quick, easy implementation—Proven technology solutions and business processes deliver the necessary dynamic SIM provisioning functionality to quickly and easily achieve flexibility and unrestricted service activation. The HPE Dynamic SIM Provisioning framework leverages an existing and planned technology infrastructure to reduce overall investment and deployment effort, and increase ease of your SIM supply chain.

Proven components

- Hundreds of thousands of SIM cards are activated every day with HPE Dynamic SIM Provisioning.
- About 100 communication service providers have successfully deployed and trusted HPE SA to implement their fixed-line telephony and mobile telephony services.
- SIM Updater 3GPP 03.48 EF updates are validated against large SIM card products from leading vendors, including Gemalto, Oberthur, Daruma, and Incard.

Network neutrality—Our solution is based on standard, third-party products and is not bound to any SIM card or network equipment provider.

Adapted customer experience—This solution does not force the use of SIM applets to provide HPE Dynamic SIM Provisioning Solution or any hard-coded communication method. It's flexible enough to support user interaction based on SMS, USSD notify, USSD menus, portal, IVR, S@T, and SIM applets that are integrated into the workflows, based on cases and need for interaction.

Single vendor for hardware, software, and services—With Hewlett Packard Enterprise, you get a single vendor for hardware, software, and services to implement a cutting-edge DSP solution.

Future-proofing and road map—The HPE Dynamic SIM Provisioning Solution platform ensures you of future readiness of proposed solution components. It has a wide range of functionality that serves as a road map for end-to-end service management and links with the service delivery and use aspects of your business.

Risk reduced—With HPE professional services, your project risk is lowered and maintenance cost reduced.

Rely on a proven expertise

Since 2008, we've implemented HPE Dynamic SIM Provisioning products to CSPs around the world, based on standard and SIM-agnostic approaches.

We're uniquely positioned for dynamic SIM provisioning as a trusted system integrator for IT and network transformation, leveraging our rich portfolio of leading products:

- Service and subscriber provisioning, leveraging HPE SA
- Mobility management with HLR/HSS products
- Messaging gateways

Our solution is SIM card vendor agnostic:

- Works with any SIM card from any vendor
- Is based on network standards and does not necessary rely on a client application or applet
- Evolves without any impact on current and future SIM cards and supports an adaptive user interface:
 - Any type of user interaction scenario
 - SMS and USSD notify for simple allocation
 - USSD or S@T menus for number selection
 - SIM applets only for vanity number interaction

Web-captive portal

- Hewlett Packard Enterprise delivers a fully owned, end-to-end solution, without any impact on an existing product environment:
- First Time Attach (for SIM detection and authentication)
- DSP application, including a DSP Workflow Manager
- Plug-in concept for the provisioning interface
- Built-in number management database
- HPE Multimedia Service Environment—Message Gateways, DSTK SIM applet, and S@T embedded support
- Embedded SIM OTA (SIM Updater)

Review our services

HPE Solution Lifecycle Services for the communications and media industry helps you realize the full value of your solutions—from planning and assessment through to testing, deployment, operation, and nearly continuous improvement. Each service area leverages proven processes and best practices to balance capital expenditures (CAPEX) and operating expenses (OPEX), and reduces risk while keeping your projects on time and operations running smoothly.

HPE Business Transformation Services helps define business transformation and translate strategies into actionable solutions.

HPE Solution Implementation Services offers a low-risk project lifecycle across design, development, customization, and network and system integration.

HPE Solutions Management Services increases the operational efficiency of your existing solutions, including reactive, proactive, operational, and enhancement services.

Outsourcing options by Hewlett Packard Enterprise are designed to improve business agility while reducing your CAPEX. Options include IT and infrastructure outsourcing, application management, and business process outsourcing.

Solution overview

Learn more at
hpe.com/us/en/solutions/telecom-network-automation.html



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