Huawei Fixed Transformation Solution
— The simple solution for PSTN renewal

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With the continued development of the telecom industry, most operators are still struggling with a declining ARPU, high churn rate of subscribers, high CAPEX/OPEX, and a relatively poor return on investment (ROI).
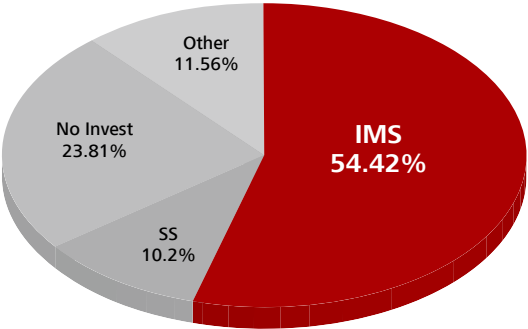
Their common challenges can be summarized as follows:

- Deal with the declining growth in PSTN voice revenue.
- Optimize investment strategies to reduce the TCO of their networks.
- Launch innovative services to attract and retain customers to compensate for the declining revenue growth from traditional services.

Huawei has developed the fixed transformation Solution to help operators meet these challenges. The Huawei fixed transformation Solution is a proven solution to help operators migrate their network smoothly, simplify the network architecture, and reduce operation and maintenance costs. At the same time, it brings together support for multimedia and convergence on a single core network. Many innovative services can be provided based on this platform to give a better end user experience and improve customer loyalty. These services will also become new sources of revenue, which will create a promising ROI. In a word, operators are able to cap their TDM investments and move forward towards an era of fully converged services.

Huawei fixed transformation solution simplifies the PSTN renewal.

PSTN Migration Choices
Data from 147 Operator's selection in IMS World Forum 2011

Pie chart: IMS 54.42%, Other 11.56%, No Invest 23.81%, SS 10.2%

Smooth network migration

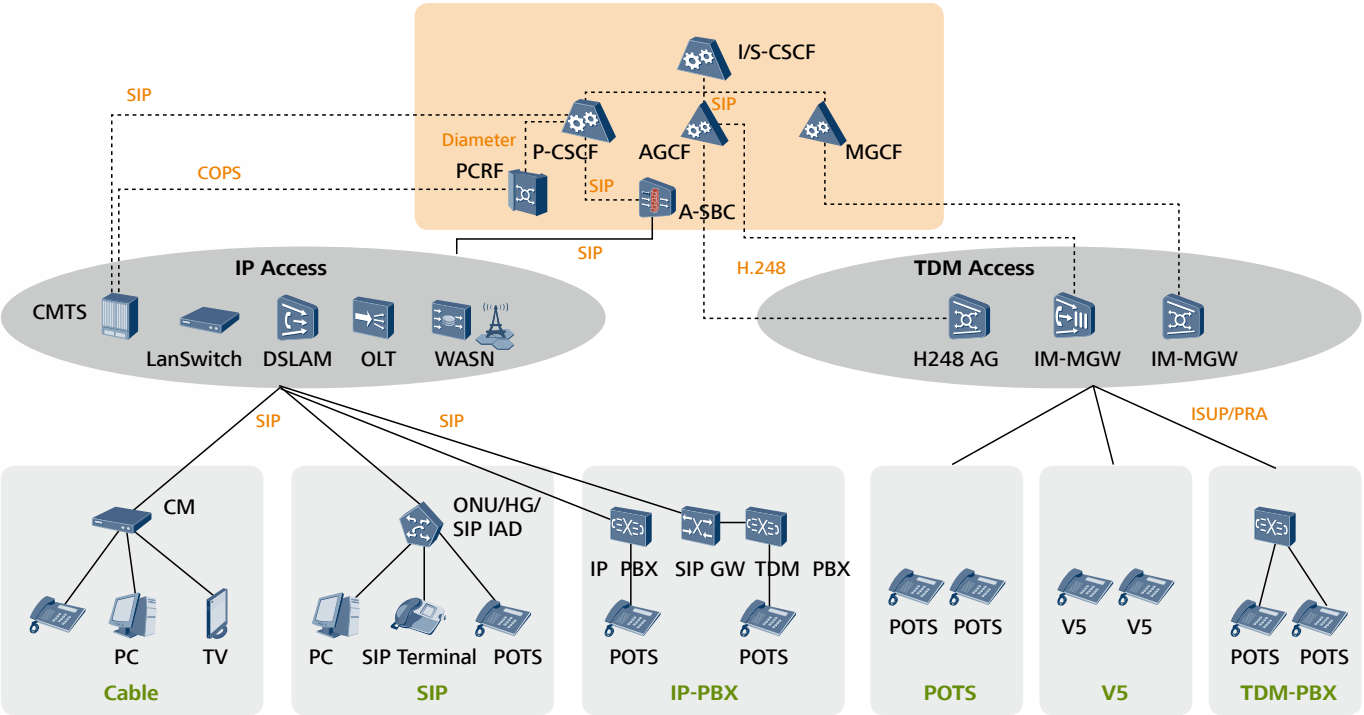The PSTN Renewal Solution provides a comprehensive way to migrate legacy TDM networks to a fully IP-based network architecture in a smooth manner.

One unified IMS based core network is capable of connecting all different kinds of access networks like

xPON,xDSL,LAN,WiMAX,CMTS for VoBB users, AGCF for legacy PSTN users(POTS/V5 etc) and MGCF or SIP GW for TDM PBX access, SBC/P-CSCF for IP PBX access.

With the purpose of achieving full service inheritance during the migration, the following two options are available to maintain the consistency of legacy services at the access side: AGCF + H.248 MSAN and SIP-MSAN + P-CSCF. Neither of them is applicable for every operator. Which option should be used depends on the existing network situation and the specific deployment scenario. So a flexible, software-driven core network is required to support both choices and even to enable the operators to transit from one to the other. The Huawei fixed transformation solution supports both solutions on a single IMS core. Common TAS which provides basic services and supplementary services and IM-SSF together with legacy SCP which provides the traditional intelligent services like ring-back tones will support the service inheritance from the service layer.

In order to make the new system work smoothly with the existing system like other core network elements and BSS/OSS system, the system integration capability is also very important challenge. Huawei provides comprehensive IOT capability like signaling adaptation, service flow configuration based on different scenarios, SIP filter etc which can greatly improve the IOT efficiency and make the whole IOT process easier.

Huawei has built 3 IOT labs worldwide to provide a timely support for global requirements. The integration with other mainstream vendor's core network elements and integration with most of the mainstream OSS/BSS vendors has been done commercially all over the world which of course can guarantee a fast, safe and cost effective network and service delivery.
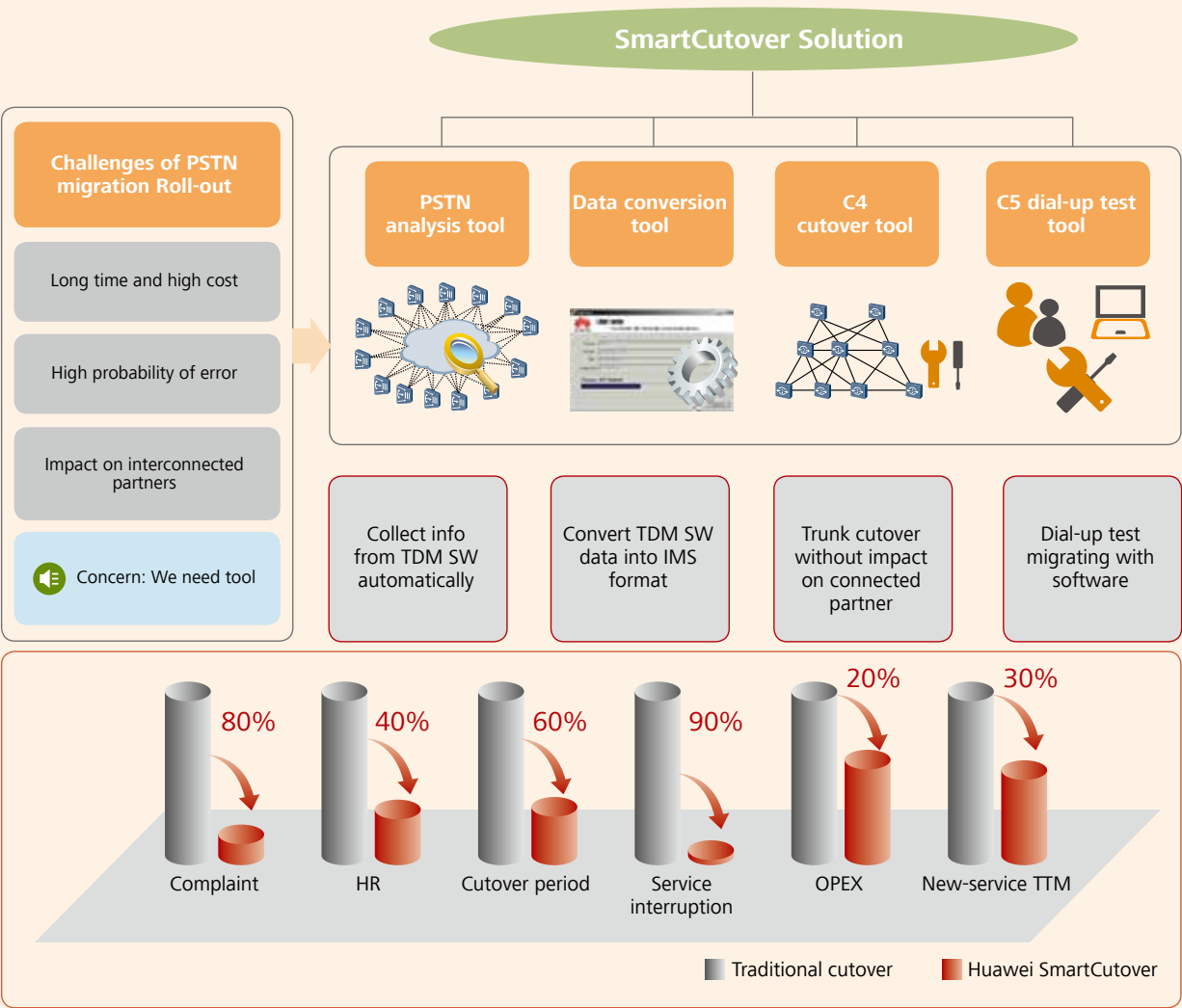
SmartCutover: Dedicated high-efficiency PSTN renewal tool.

With more than 10 years of experience in PSTN migration and with a deep understanding of the concerns of operators in recent years, Huawei has developed a dedicated tool to overcome the common issues and key obstacles with PSTN network transformation. Considering the full scope of PSTN migration, SmartCutover includes the following four sub-tools:

- **Legacy PSTN analysis tool:** Based on the resolved original data on legacy PSTN switches, all the essential information required for migration like networking, services, interconnection parameter, and so on can be extracted and reorganized as a unified format to support further network design, planning, requirement surveys, data conversion and network consultation.

The analysis tool supports PSTN switches from all mainstream vendors. A highly scalable and open architecture is used to support new types of switches and new services by simply adding additional components.

- **Data conversion tool:** The conversion tool is used to convert basic user data in the legacy PSTN switch to the MML command used for the Huawei IMS solution. Basic user data includes the user number, user authority, user attribute, user status, and so on. The conversion tool can efficiently perform a precise, rapid and integrated user data migration.

- **C4 cutover tool:** Based on features like multiple signaling point, the C4 cutover tool helps connect peer equipment using the same signaling point code (SPC) as the target C4 switches. Compared to the traditional method, this tool can greatly shorten the cutover

duration and does not require modifying any data on the equipment connected to the target C4 switch. This can also reduce the additional costs of new SPC resource application and coordination on peer nodes. The most important feature of this tool is that it can achieve zero service interruption.

- **C5 dial-up test tool:** Automatic dial-up can be easily achieved with the C5 dial-up test tool. This can greatly improve the efficiency of C5 line-jumping dial-up tests, reduce the overall workload and shorten the whole schedule.

SmartCutover Solution

SmartCutover has been widely used in many practical PSTN renewal projects. The field-proven high efficiency of SmartCutover when compared with traditional manual cutover has a large positive impact for operators. SmartCutover demonstrated a 90% total efficiency improvement in a PSTN renewal project for operator T in Europe and an 80% improvement in another PSTN renewal project for operator M in the Asia-Pacific area.

Rich user experience

At the upper layer of the IMS deployed in the fixed transformation solution, many enhanced services can be easily deployed to expand your business beyond voice services:

- **Rich communication suite features** provide address book synchronization, enhanced messaging, presence/group information, media sharing, and enriched calling to enhance the end-user experience. The Huawei RCS soft client can run on smartphones, tablets, dongles, PCs, STBs, and home GWs on various OS platforms, such as iOS, Android, Blackberry, webOS, and so on. Huawei RCS provides a single number with fixed phone based continuity and interoperability, which can offer an enhanced user experience with full support for

legacy services. The E2E QoS guarantee with advanced features, such as HD voice and native interoperability with telephone networks are unique features of Huawei RCS.

"let the fixed phone go out" is the key benefit RCS provides to traditional fixed and full service operators. It can greatly help operators retain users and can create new revenue by extending the fixed market to mobile users.

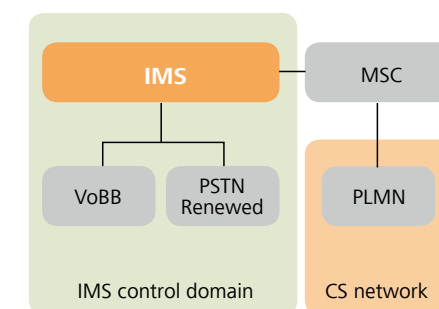Huawei RCS soft client can be embedded into smartphones to greatly enhance the user experience.

- Unified address book and dial panel to support both CS call, SMS, IM, file transfer, and sharing.
- Social networking integration with support for most popular social networking applications, such as Facebook, Twitter, Flickr, and so on.

- **Convergent conference** provides an open environment for any kind of access and devices to join in a single video conference, not only attendees in dedicated conferencing rooms, but also telecommuters with soft clients and mobile phone users. Plain voice, HD video, data, web, and telepresence can all access the same conference. In addition, interconnection with traditional H.323/

Cisco conference systems can be supported and lower bandwidth is required for video conferencing compared to industry benchmarks. A unified web portal is used for flexible conference management.
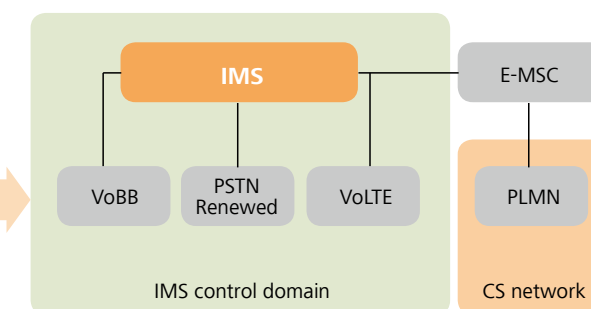
Huawei convergent conference provides flexible business models for different operators, such as hotel mode, resell, enterprise rental, and secondary operation, to increase revenue thanks to the generation of different CDR formats.

- **Convergent IP Centrex and business trunking** is one of the services of Huawei IMS that best addresses the needs of business users. It gathers fixed lines, PBX (TDM or IP based), mobile phones, and soft phones into one group. Open interfaces (APIs) are also provided to connect third-party ICT applications, such as corporate IT applications,
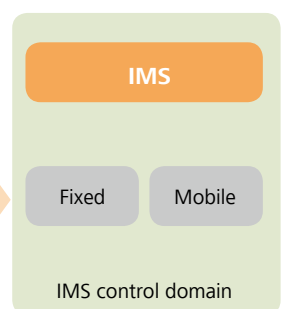
with rich features, such as voicemail-to-email, click-to-dial, etc.

Huawei convergent IP Centrex application is built into the telecom application service (ATS9900), which means that operators that have already invested in Huawei IMS voice do not have to re-invest in any hardware or network adjustment for Centrex service, only additional licenses are required.

The Huawei business trunking solution can support the legacy TDM PBX while simultaneously supporting IP PBX. There are three TDM PBX access options: SIP gateway when no TDM transmission resources are available, AGCF, and MGCF when TDM transmission resources are available. Based on Huawei flexible solution, integrated business mode with broadband rent and voice trunking rent can be easily accomplished.

Future proof architecture

With the development of LTE, voice over LTE will become more and more important. The Huawei fixed transformation solution is ready to support VoLTE user access smoothly with only a software upgrade. The whole IMS core can be reused along with the common TAS to achieve service consistency on fixed and mobile networks.

ICS is an efficient architecture that provides a single core control for different kinds of access networks (PSTN, xDSL, FTTx, and Mobile) and unified application servers that deliver a consistent and seamless user experience anywhere on any

device. The Huawei fixed transformation solution can be upgraded to support ICS and provide full FMC services.

All IMS core components are based on the ATCA platform, a high performance, reusable and scalable hardware platform. This leads to fewer network nodes, fewer spare parts, less energy consumption and a smaller footprint per user. At the same time, all components share the same O&M system. As a result, the TCO, especially OPEX, can be reduced significantly year over year.

Summary

PSTN transformation is a challenging task for operators. The Huawei IMS-based fixed transformation solution provides an optimal way to make this process faster, easier and safer. The solution supports full legacy PSTN access and complete service inheritance. In addition to voice service, other services

can easily be provisioned and integrated to increase ARPU. Based on the standard ATCA platform, a highly re-usable unified network architecture can be achieved smoothly in a cost effective way. Huawei IMS-based fixed transformation solution is the right choice to simplify your PSTN renewal.