

Service Provider Voice (R)evolution: Switch to Cloud Communications Platform



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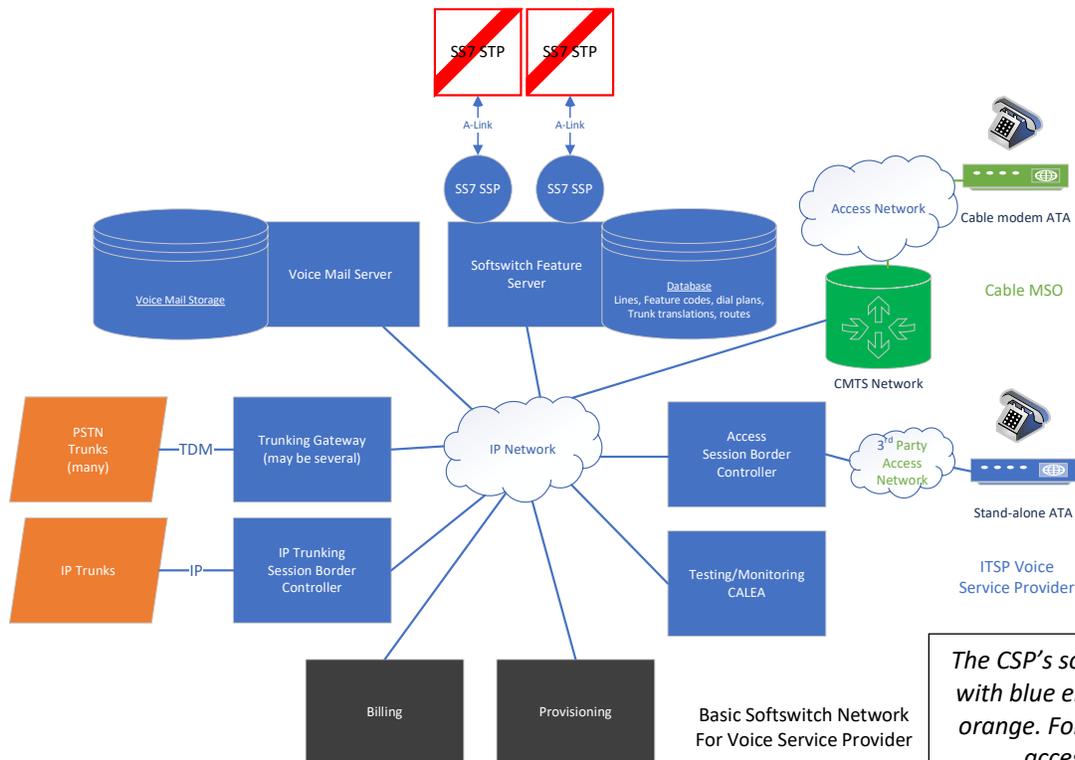
Service Provider Voice (R)evolution: Switch to Cloud Communications Platform

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It was over one hundred years ago that the telephone became a ubiquitous part of our lives. In the age of texting, tweeting, and social media, all taking place on mobile devices, is traditional telephony still relevant? Are the softswitches we have used for many years the right solution?

To see where we're going, it's helpful to first look at where we've been. Let's look at how telephony over the IP network began and evolved. In the 1990s, the first cable telephony systems used proprietary RF links with switching on traditional Class-5 Switches, such as the AT&T 5ESS or Nortel DMS-100. Early cable telephony systems ("circuit-switched telephony") from Nortel and Tellabs never became popular. With few exceptions, operators didn't want to deploy a solution designed for copper pairs. Stand-alone ITSPs also began service about this time, while cable MSOs led the charge toward IP-based telephony for the masses, in part due to standardizing an access architecture by CableLabs.

The CableLabs PacketCable standard made inclusion of telephony in the cable modem interoperable, and the introduction of softswitches from vendors like Nortel, Cisco and Siemens made the back-office practical. Now, operators had a technology that would fit in their DOCSIS infrastructure and enable VoIP. All they had to do was build colocations and TDM gateways to local / long-distance interconnection partners, build many databases, do their SS7 and 911 connections, etc. This is the "modern" softswitch infrastructure for a typical operator:



One thing you see right away is that there are a large number of network elements, often running on proprietary hardware from many different vendors. Also, the number of interconnections between them, and with external systems, creates a high level of complexity and many potential points of failure. The operator must be concerned not only with how these systems operate, but who to call when they do not. Is a trunk group down? Voice mail disk error? Packet loss on a link? While a network monitoring system can tell you that troubles are happening, only an experienced staff will know what to do. The people part of the equation is critical. Software upgrades are also a never-ending challenge.

Specialized technical staff is needed to establish interconnection points with all local and long-distance carriers, and the equipment must be programmed and maintained. These might be traditional TDM interconnections, requiring Trunking Gateways, or newer IP interconnections, requiring Session Border Controllers. Capacity planning, in terms of just how many calls-per-second each device can process and how many trunks are required for interconnection are specialties that each softswitch operator has to develop. Signaling connections on the vintage SS7 network is another area of specialization that must have adequate human resources. In addition, someone must maintain connections to E911 trunks and ensure that the address information for each subscriber is reliably recorded using a validated address.

Add to the staffing the standard requirements of ensuring that customer orders are processed reliably, customer inter-facility moves take place when needed, call routing is proper, and customer complaints are resolved. You have assembled a substantial collection of hardware and software along with quite the operational burden!

Today, the legacy wired telephony world is shrinking due to increased use of wireless devices. The phone is no longer associated with a house or a business, but with a person. Many operators have seen the demand for fixed access lines decrease dramatically, even when the lines are offered at a very attractive price as part of a package. When the lines are provisioned, they may not be used much because mobile telephones have largely replaced fixed lines for many customers. This has left a lot of the ITSP and MSO telephony capacity sitting idle. Unfortunately, the operators still have to pay for this equipment and all of the people required to run it.

The experienced softswitch staff in the service provider's own office may also be retiring in large numbers. Finding replacement staff with arcane knowledge can be very difficult, and it does not make financial sense to spend money training new people on obsolete technologies.

While all of this is going on, new Over-The-Top (OTT) providers have hit the market with compelling business solutions. Business texting ("*your appointment is tomorrow*"), UCaaS (customer service from home, web page press button for agent, etc.) and other advanced cloud applications threaten to make an operator's basic business services less relevant.

The softswitch infrastructure relied upon by operators is facing challenges. Some of the original softswitch companies no longer exist, and those that do have limited support for these aging products. A changing vendor landscape has accelerated the need for change: BroadSoft was acquired by Cisco, Ribbon is a collection of legacy vendors, and Microsoft is buying Metaswitch. Whether the new owners will make their softswitches a priority is, as of yet, unknown.

Taking these factors together, it is clear that the softswitch infrastructure that so many carriers have relied upon to get into the telephony business is due for an upgrade.

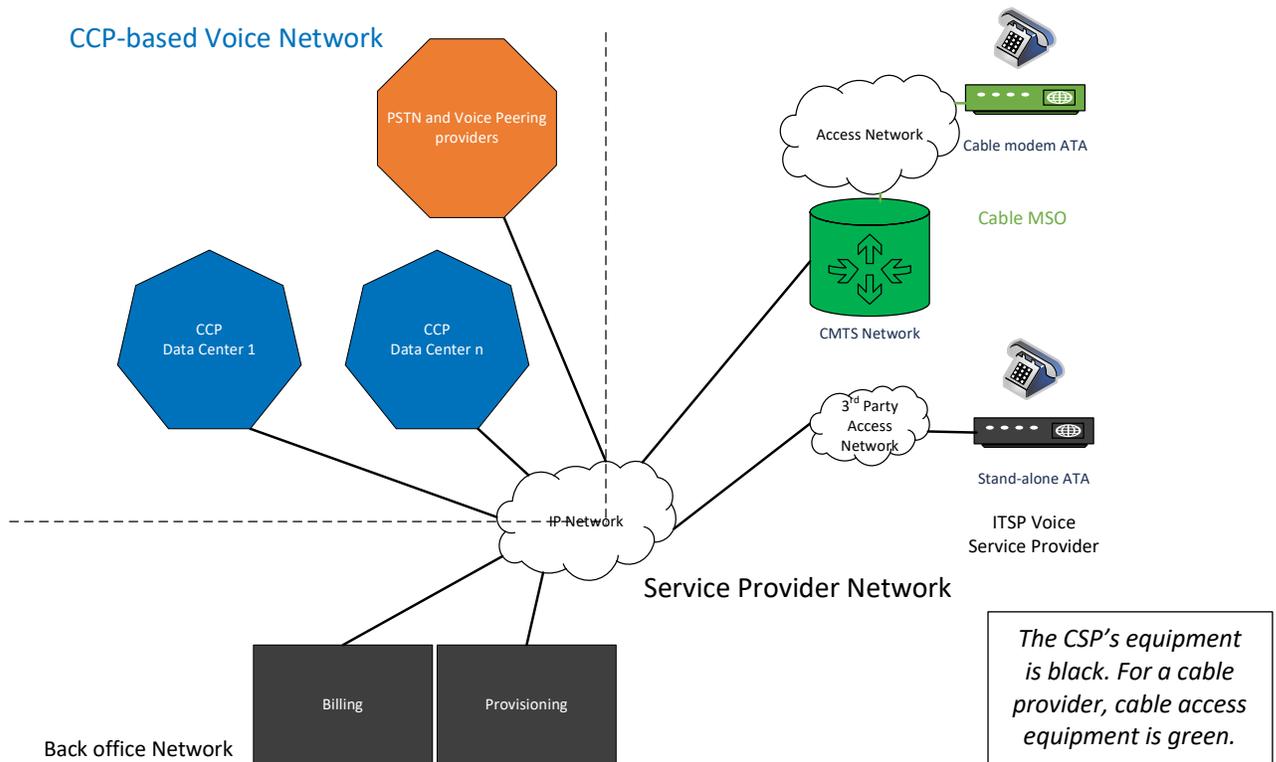
So, should the operator go out and find a new softswitch? There are still vendors out there selling softswitches and providing good support for them. But, in the face of shrinking legacy telephony revenue, is that kind of investment a smart move for the future? Would a softswitch have the features required to serve a business customer seeking cloud communications?

Many of the computing functions that a business used to do on equipment located in their own data centers, such as e-mail, customer service applications and billing, are now done in the cloud by third parties, typically operating on multi-tenant, scalable infrastructure. Businesses don't worry about maintaining servers or software, and only pay for what they use.

Wouldn't it be nice if we could evolve the softswitch to this type of solution? We can.

A Cloud Communications Platform (CCP), is that new solution that is a more flexible and scalable choice. Here, standardized computing platforms not only run the traditional softswitch functions, but can also perform new and advanced functions not previously available in a softswitch. The CCP takes advantage of the new way of doing things, using cloud native software and web-scale technology. Because it is designed to run in the cloud, security functions are built-in. Collaboration and messaging applications, instead of something you need to bolt-on yourself, are included.

It's a dramatic simplification and modern, future proof in a Software-as-a-Service (SaaS) package. This is not the same as using a white-label hosted softswitch solution from a retail service provider. In that case, it's the same old hardware and subject to the same uncertainties that led us to this situation. The core technology and the vendor focus is quite different with a CCP.



There is a reason more and more companies are outsourcing their e-mail and other critical systems. It does not make sense to devote their own resources to something that many other people have already figured out and can provide in a way that can be purchased off-the-shelf, works better, easily scales and ultimately costs less.

The CCP has become that type of system for voice networking. With a CCP, as shown above, the operator retains their customer endpoints and their billing and provisioning systems. However, the rest of the network is cloud-sourced. Operators want two things from their cloud-sourced network: a highly-automated, easy-to-operate platform; and one that is scalable and includes a full set of business features that can compete with Unified Communications as a Service (UCaaS) solutions available from Over-the-Top (OTT) providers.

The specialized programming that drives a typical softswitch feature server is instead running on a generic platform at a server farm or preferably two of them, geographically diverse. With CCP, every month the technology improves with new capabilities and use cases to meet market evolution. The market is moving too fast to risk reliance on outmoded ways of operating.

The CCP provides a complete solution with carrier services from a 3rd party, such as Bandwidth or CenturyLink, so PSTN interconnections, LNP, CALEA, CNAM, e911 management burdens are also simplified. Another option would be interconnections arranged by the operator. However, doing so would retain some of the complexity and add to the required personnel.

What does it take to make the transition?

The first step in the process to go from a softswitch-based network to one based on CCP would be an inventory of all of the endpoint types required for the service. An operator will want to validate that all of their installed endpoints may be supported by the CCP. In some cases, an existing endpoint may require a firmware upgrade or a signaling conversion (from MGCP to SIP, for example).

All of the features currently offered by the operator must be available and ready in the CCP. Features must not only be present, but they must be set up to use the same dial plans and access codes. Numbering plans and dial plans have to agree.

In the case of Cloud PBX (aka IP Centrex or Hosted IP PBX), the operator must ascertain that the phones currently deployed are supported and that features are provisioned in the same manner.

The operator's billing and provisioning systems (whether in-house or 3rd party) connect to the CCP typically using REST APIs. The CCP will provide portals for the service provider and end users to access and control their lines, phones, and features.

To sum up, transitioning to CCP is similar a softswitch migration of the past, but without the installation and integration burden. And this would be the last migration you'd need to make given the future-proof platform.

Conclusion

Voice service providers of all types may take advantage of CCP. An MSO with PacketCable infrastructure, a small telco that replaced their circuit switches, a business-based CLEC, and an independent ISP all face the same legacy softswitch predicament. Each can benefit by replacing their obsolete, hardware-based, labor-intensive network with a cloud-sourced solution. In addition, a new service provider, such as a municipal or power utility fiber operator, can add voice to their portfolio with fully success-based cost while maintaining a great competitive position versus OTT providers.

By migrating the voice network to a SaaS platform partner, the service provider can reduce their capital costs to zero while lowering their operating expense through the reduction or elimination of most of the specialized positions where people are nearing retirement, and those not nearing retirement could be transferred into more strategic roles based on their skills. Automation can reduce the number of steps involved in processing customer orders, improving efficiency.

Any future feature upgrades to create new services, or platform upgrades to expand capacity are performed by experts in the CCP organization rather than devoting scarce internal resources to these efforts. The service provider is free to concentrate on serving their customers rather than maintaining their network. Operating costs are clearly defined as a per-user cost that scales directly with the success of the business.

One company devoted to providing a cloud communications platform is Alianza (www.alianza.com). They can take a legacy softswitch-based provider and fully convert the operation to CCP in less than six months. Alianza sees a clear trend in both residential and business voice service providers switching from their own softswitch-based solutions to the CCP cloud. As their CEO Brian Beutler stated, "Service providers have an amazing opportunity to bring together their broadband networks with the best cloud platforms to deliver compelling products and experiences for their customers." He went on to say "Alianza's Cloud Communications Platform provides the cutting-edge products the market demands while providing service providers the best overall cost of ownership."

As someone who was enmeshed in the complexity of selecting, installing, operating, and maintaining softswitches for many years, I'm relieved to have found a way to lift this burden from service providers at a time when it's most welcome. Perhaps with the innovations enabled by cloud communications platform, we will be ready for the next hundred years.