EXECUTIVE BRIEF

Maximize healthcare IT resources with a centralized voice network

Centralized SIP trunking enables easier management across HCOs:

- Moves, adds, changes and deletes.
- Business policy changes.
- Caller ID.
- Call blocking.
- Overflow call rerouting.
- Long distance and local calling plans.
- Expense management.
- Call records.

In today's communications landscape, healthcare organizations (HCOs) must find ways to keep their business running while managing costs. In light of this, HCOs are transitioning from traditional technologies like Primary Rate Interface (PRI) to IP-based Session Initiation Protocol (SIP). As an IP-based technology, SIP is easier to consolidate and centralize to one or two locations and requires less hardware to maintain and manage.

A voice infrastructure that is centralized provides more flexibility and offers a way for HCOs to ease demands on their IT teams, increase efficiency and cut costs. Achieving the optimal balance between cost and performance requires planning and selecting the trunking architecture that best meets business objectives.

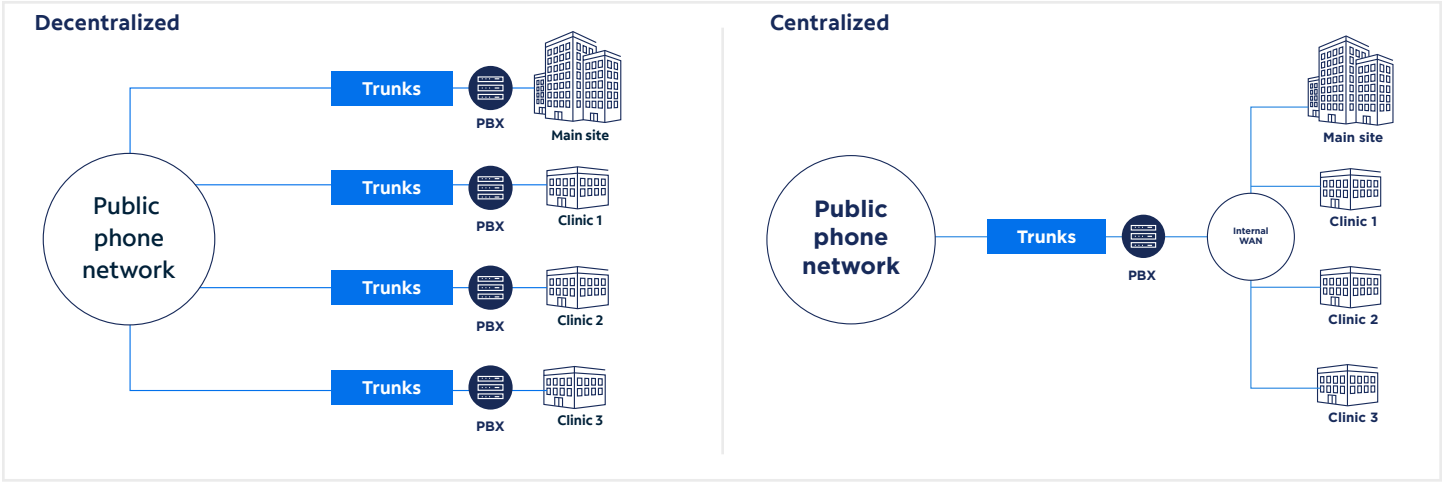
Why centralize your voice network?

Centralizing PBX equipment and voice trunks makes enterprise networks simpler to maintain and easier to scale while achieving uniformity of experience across all sites.

In a distributed model, each location must have a PBX and a separate connection to the public phone network (see Figure 1). Centralization can consolidate all of your organization's PBXs and voice trunks into a single data center, eliminating the need for multiple PBXs. As a result, calling capacity can be shared across the enterprise, regardless of whether or not the phones are located in the same building.

A centralized voice network lets IT teams maximize their limited resources Consolidating voice resources into a single location can streamline their workload and free IT staff for evolving business priorities. Repetitive tasks like phone line moves, adds, changes and deletes (MACDs) can be completed quickly. Likewise, it's easy to manage business policies like international call restrictions and customized outbound caller ID from a centralized location.

Figure 1: Two models for voice trunking



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Legacy solutions, such as PRI trunks and other older technologies, can be left in place alongside a centralized phone network and migrated on a timeline that makes sense for the enterprise. Many HCOs need to retain analog equipment like older point-of-sale systems or fax machines. Allowing for this legacy support can be crucial in many industries eager to modernize other parts of their voice infrastructure.

Centralizing trunking and PBX equipment also benefits hybrid systems. HCOs with varied needs can upgrade some parts of the organization to cloud-based unified communications while maintaining on-premises phone solutions for larger departments. This approach lets IT managers get the most out of their existing voice infrastructure while introducing more modern applications like video conferencing or business collaboration tools when and where it makes sense.

Every HCO's needs are different. With centralization, HCOs upgrade their telecommunications system for better efficiency, at their own pace, without disrupting day-to-day operations.

Where they started

- 6 hospitals.
- 23 clinics.
- 9,912 employees.
- 6,000+ call paths.

Use case: A regional health system

The largest health system in a metropolitan area with 4.4 million residents managed aging voice systems while its operations continued to expand. Administrators faced a dual challenge: multiple facilities began experiencing unacceptable outages and quality issues, while the high cost of repairing legacy phone systems made a system-wide upgrade an immediate priority. Compounding the problem, much of its analog equipment was reaching end-of-life, raising liability concerns if replacement components became unavailable.

The organization's roots date back to the city's first hospital. Over the decades the health system grew to encompass two specialty hospitals and three more community hospitals in neighboring suburbs. A decade of consolidation in the local healthcare market also brought the health system's number of affiliated clinics to 23.

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The health system had invested in a new data network at the same time it upgraded its electronic health records system to meet requirements of the Affordable Care Act. But voice infrastructure had long taken a back seat to other IT priorities at the hospitals. In addition to the expense associated with several phone networks installed in the 1990s, each hospital hosted its own PRII-enabled PBX.

Administrators at the clinics, meanwhile, had already invested in unified communications. This solution put in place a single system for digital voice services, business collaboration tools and high-quality video conferencing for consultations with physicians located at different facilities.

Unique needs

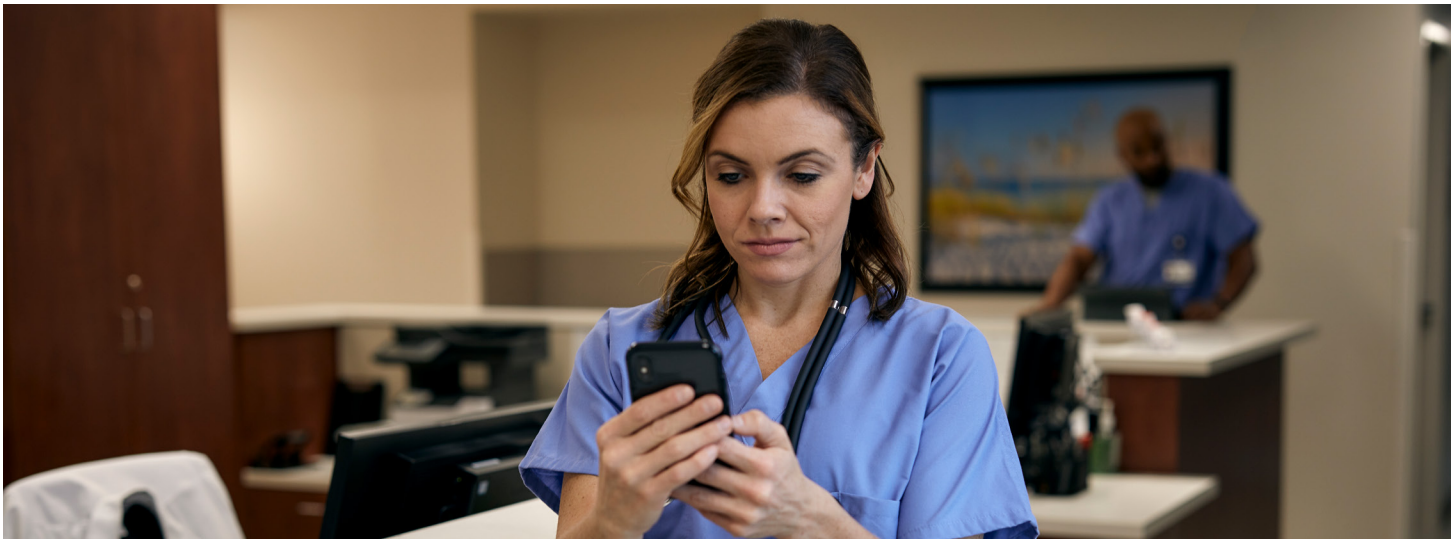
The health system's capital plans included expansion of a hospital and the addition of three new clinics over the next 10 years. Requirements for the consolidated PBX included technology that would remain viable over the life of new facilities while also accommodating rolling upgrades to older systems without disrupting operations. The project plan called for a service provider that could offer diverse solutions and engineering expertise, even as the health system's IT team retained complete control of upgrades to critical communications systems at hospitals and other facilities.

IT leaders wanted a financial outcome that clearly justified the project. They saw that similar health systems had seen voice expenses drop after upgrading from PRI to SIP. More efficient use of trunks through centralization and more favorable contract terms for voice channels made a similar target realistic for their facilities. Plus, the move from several PBXs to two would reduce the overhead required to maintain the voice network going forward.

Project challenges

It was critical that any new voice system be secure and compatible with the Health Insurance Portability and Accountability Act (HIPAA).

Business continuity represented another top priority. Hospitals are engineered to weather catastrophic events, and their phone systems are no exception. Connections to the public phone network require an extremely high uptime rate. In an emergency, IT managers need real-time insight into the status of the entire network and the ability to triage available call paths.



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Medical personnel also count on uninterrupted communication with emergency services. While phone systems rarely top the list of healthcare IT spending priorities, their reliability remains a critical, high-consequence part of hospital operations.

The transformation result

- 2 data centers serving six hospitals.
- A hybrid solution with unified communications as a service supporting 23 clinic locations.
- Diverse fiber access.
- 3,792 call paths.

The new solution

The organization built its new voice capabilities for the hospitals on top of its private WAN, enhanced by dedicated bandwidth from Spectrum Business Ethernet Services. PBX locations scattered across three counties were consolidated at two data centers in hospitals with existing offices for IT personnel (see figure 2). Even with fewer PBXs in operation, the upgrades improved system resilience. Should one data center encounter problems, it would immediately fail over to the second.

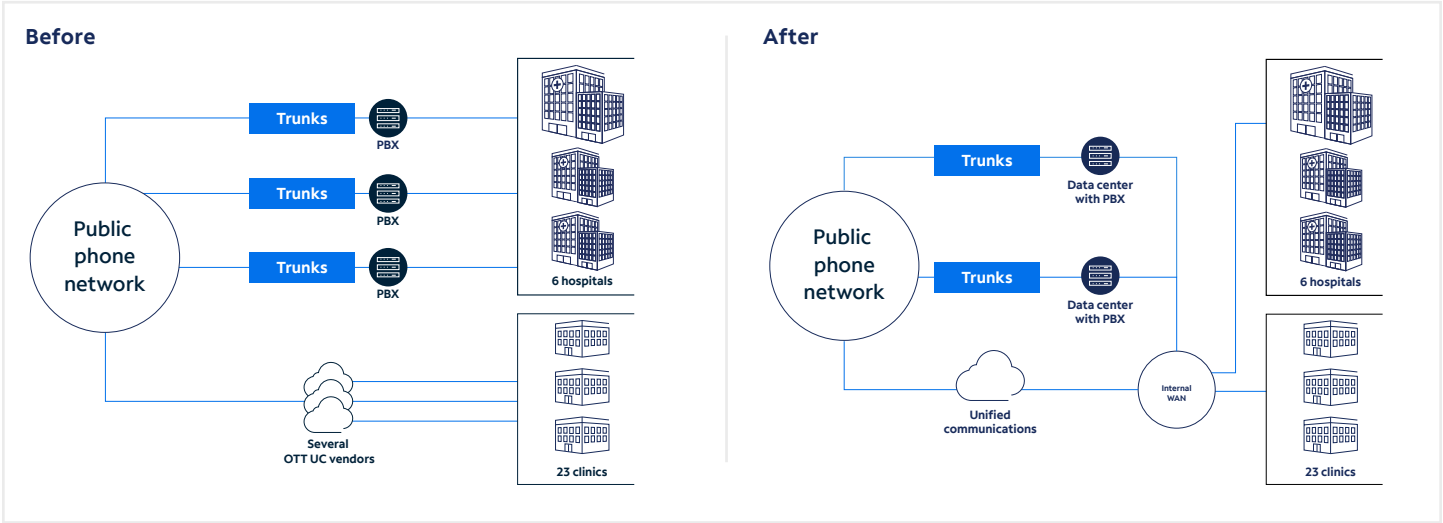
An audit of voice usage led to more efficient use of call paths while retaining the same number of direct inward dial (DID) numbers. More efficient use of voice resources and fewer charges per call path achieved the project's goal for substantially reduced costs.

At the clinics, practitioners gained access to a range of new collaboration tools with Spectrum Business® Unified Communications with Webex. It also gave physicians the ability to receive calls on mobile or office phones with a single number.

Diverse fiber access provided another resource for crucial business continuity. Multiple fiber-optic cables located at different sites ensured continuous data and voice communications if one or more were damaged. Beyond the data centers, public phone network access was supported by a service-level agreement (SLA) providing 99.99 percent network availability.

Implementing this new hybrid system required a careful, phased approach. Spectrum Business installed SIP equipment parallel to the legacy PRI infrastructure. Health system IT professionals coordinated with providers to connect new and existing trunks to the WAN and turn down legacy equipment with minimal disruption. This work took place over several weeks at different hours of the day and night. The flexible process ensured uninterrupted access to hospital resources.

Figure 2: The challenge and the solution



Digital phones and 911

All enterprise VoIP solutions must meet the requirements of Kari's Law, RAY BAUM'S Act and E911 outlined by the Federal Communications Commission. Not only is 911 service mandatory for all customers accessing the public phone network, IP-based phone services must automatically identify a dispatchable location (street address and other info such as floor/suite/room) and transmit a callback number to emergency operators.[1]

The consolidated approach with a single service provider also streamlined voice contract administration and cost management for the health system's accounting department.

The new gateway infrastructure integrated legacy fax systems used by several doctors' offices and allowed for two departments to keep their PRIs in place until work could be completed during planned building renovations. The overall result: a centrally managed, cost-effective voice upgrade with system safeguards that reflected the organization's critical role in the community.

A trusted partner

Voice system modernization offers much more than an opportunity to replace outdated hardware. An upgrade to centralized trunking can reduce maintenance, trim operational costs and strengthen system reliability — all while meeting the unique requirements of HCOs.

Work with a service provider that has the knowledge and experience to help you achieve successful implementation of a modern communications experience. Spectrum Business can evolve your voice network with superior client service to create a system that is flexible, secure and future-ready.

Learn more

1. "VoIP and 911 Service," Federal Communications Commission, accessed August 22, 2020.

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