Session Initiation Protocol

The blueprint for patient-centric mobile communication

Including the clinical benefits of SIP integration with nurse call systems as illustrated by Responder® 5
In any modern hospital or healthcare setting, clinical staff need the tools to be mobile, flexible and responsive. As primary care givers, nurses in particular need to always be connected to their patients – no matter where they are on the ward or elsewhere on the hospital site.

Hospital technology departments have responded. The integration of nurse call systems with wireless devices is not new. First such solutions were enabled by Telelocator Alphanumeric Protocol (TAP) and relied on a middleware platform to send nurse call notifications to wireless devices such as pagers or wireless phones.

As healthcare providers look to reduce the total cost of technology ownership, there is more prolific use of converged IP communications technology, including data, voice and video on a single network. In line with this trend, we have seen the emergence of Session Initiation Protocol (SIP) – which builds on the IP communication platform and introduces a standards-based approach to IP communications with various wireless devices.

IP communications and SIP can dramatically increase workflow efficiencies and help hospitals deliver a patient-centric care model. This includes faster response times to nurse call requests, the reduction of noise levels in the patient care areas and the ability to provide more detailed clinical reporting.
In this paper we compare TAP vs SIP in a healthcare setting, discuss the clinical benefits of integrating nurse call systems with the SIP telephony standard and present the technology architecture which supports patient-centric workflows.
SIP explained

More recently, nurse call systems that implement the Session Initiating Protocol (SIP) as the telephony standard are becoming the industry norm. These solutions allow a SIP compatible wireless device to communicate directly to a SIP compatible nurse call station. Since SIP is an industry standard, the compatibility is native and allows direct, peer-to-peer communication between the device and nurse call station – eliminating the need for middleware.

In SIP capable solutions, the alert received by the nurse’s wireless device is actually a voice call placed from the patient station to the device. As such, the response time to the patient call is virtually instantaneous.

Ultimately, the SIP solution involves fewer steps within the technology to achieve communications between the two parties. It requires fewer pieces of equipment to establish the connection and the connections are made considerably faster than in legacy TAP-based solutions.

TAP explained

For a number of years, nurse call systems have been able to send event alerts to wireless devices using TAP and a middleware platform. The alerts were received by devices such as pocket pagers or appropriate wireless phone systems. These legacy Telephony API TAP solutions enabled wireless phones to be used as display and input devices.

In such a scenario, a nurse phone ringing is not actually a phone call at that stage, but rather an alert (text message) sent to the phone. If the nurse chooses to respond, the phone must be directed to dial the nurse call system, and when the nurse call system answers, the phone must then dial the patient room within the nurse call system. Although this process is completed automatically, Telephony API answer delays can range from 4 to 15 seconds.
Streamline critical communications
Sometimes in healthcare, every second counts. SIP integration enables nearly instantaneous connection between the patient placing the call and the nurse receiving it. Patient needs are met in a timely fashion which has a positive impact on patient safety, health outcomes and overall satisfaction, and the seamless connection saves nursing time.

Provide assurance that every patient call will be answered
The smart call escalation feature ensures each patient call will be attended to – even if their designated nurse is not available. Nurses have peace of mind that their patient will receive the care they need and subsequently patient waiting times are significantly reduced.

Make better clinical decisions
The system provides comprehensive reports which include information such as answered, acknowledged and ignored calls, itemised by patient and individual staff member. Equipped with reliable and accurate data, nurse managers and administrators are able to make informed decisions to support productivity and efficiency improvements.

Facilitate clinical collaboration
Great teamwork is powered by great communication. SIP integration enables messages to be sent to groups or individuals straight from the PC at the nurses station. This helps to promote better flow of information and saves time in manual and time consuming follow up with individual staff members.

Reduce the cost of implementation
Programming of SIP based systems is more intuitive than comparable TAP based solutions. This represents a saving of up to 50% in labour cost associated with system set-up. As SIP eliminates the need for expensive middleware, the associated savings in extra hardware, software and programming are also significant. Depending on the size of the site and the complexity of the solution, this saving could be in the vicinity of $250,000.

SIP advantages
SIP trunking facilitated by a dedicated SIP Server is commonly used to reduce the nurse call system footprint that is visible to the SIP telephone system. The phone system needs to only support dial plan routing, eliminating the need for visibility to each individual nurse call room and bed.

SIP-based nurse call telephony delivers a number of important clinical benefits. To illustrate with the Responder 5 nurse call system as an example, SIP integration will help you to:
SIP technology architecture

As Responder® 5 treats phones as phones and response times are typically immediate, nurses are empowered to give a patient instant assurance that their request has been heard.

The efficiency of the SIP technology infrastructure can be illustrated by the Rauland Responder 5 nurse call and hospital communication system.

Responder 5 nurse call system employs SIP communications natively to take advantage of the converged IP space, including a multitude of wireless communications devices. These can include modern enterprise telephony platforms and devices such as smart phones to capture ‘Bring-Your-Own-Device’ (BYOD) opportunities.

All Responder 5 nurse call beds / rooms auto-register with the SIP Registrar regardless of the phone system in use. In turn, the SIP server is able to leverage off the Responder 5 systems auto-registration of every one of its audio endpoints – i.e. Patient Stations, Consoles, Staff Terminals, etc – and present the entire nurse call system to the phone system as a single SIP trunk. This in turn saves set-up time and reduces the risk of set-up errors and system incompatibility.
Following is the basic architecture of a Responder® 5 Direct Connect SIP deployment – to a wireless SIP capable device.
For over 23 years, Rauland has been supporting better health outcomes through integrated communication solutions for healthcare. We specialise in nurse call system deployments and integration both into greenfield sites and existing hospital environments.

The Rauland Responder® 5 nurse call and hospital communication system leads the market with its robust and flexible design and features the latest developments in nurse call technology.

Contact us to discuss your current or future nurse call and hospital communication requirements, or to request a demonstration of the latest nurse call solutions.