

LARGE UNIVERSITY

Campus-wide automated E911 across multiple IP-PBX platforms

The University is a large private university in Northern California spanning more than 8,000 acres. Over 17,000 students, faculty and employees are on campus daily when classes are in session. The University's hospital and clinics are located on the campus and a new clinic and medical research center has recently been constructed five miles away.

THE CHALLENGE

Provide campus-wide automated E911 for IP phones across three separate IP telephony platforms

The University's move to IP telephony has introduced the challenge of phone mobility. An IP phone can move anywhere on the voice layer 2 network and receive dial tone, so the University needed an automated E911 phone location determination capability for their IP phones and a system that could update their IP-PBX platforms with the appropriate emergency dialing numbers (ELINs). Additionally, the E911 solution had to integrate with three separate IP-PBXs (Avaya, Nortel and Cisco) and work with phones from all three providers. The University also wanted a system that could integrate with their existing telephony work flow system (Pinnacle) and their existing IT notification system (MOM).

THE NETWORK

Three IP-PBXs running across a single layer 2 data switch network

The voice network consists of three IP-PBXs running on a common layer 2 data switch network. The platforms include a Nortel CS2100 (SE10), Avaya S8700 (ACM v5.0) and Cisco Unified

Communications Manager (v6.2). These three platforms, installed in separate datacenters, run on a common layer 2 data switch network using mostly Cisco 8750 switches. The network is supported by a central DHCP server that has created a geographically defined network region for each building by allocating unique IP address ranges for all layer 2 switches in a specific building. When an IP phone plugs into a building, the DHCP server gives it an address from the unique block of IP addresses assigned to that building and the phone registers with its IP-PBX (Avaya, Cisco, or Nortel).

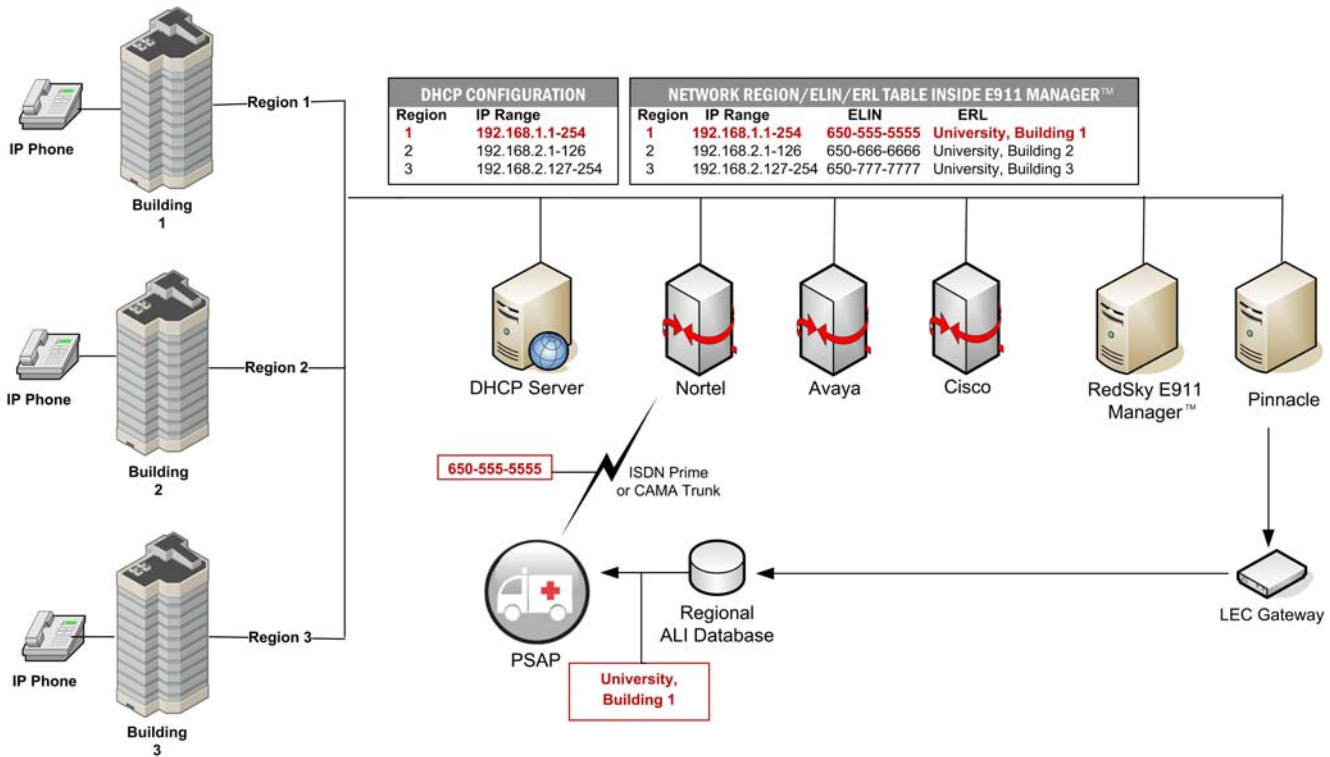
The network is also designed so that all calls from the Avaya and Cisco platforms are processed through the Nortel CS2100. The Nortel CS2100 recognizes all 9-1-1 and 9-9-1-1 calls and is the only platform that requires 911 call ARS routing and 911 trunking.

THE SOLUTION

A single E911 application that supports all platforms and integrates with existing applications and processes to create a fully automated, campus-wide E911 solution

The University chose RedSky's E911 Manager™ to achieve its goal. E911 Manager is the only application certified for interoperability with the University's Avaya, Nortel and Cisco platforms and cross-platform operation is critical in the University's case. Having a single application like E911 Manager simplifies the network and makes automation easier to attain.

E911 Manager maintains a detailed table of all network regions/IP address ranges which mirrors those held in the DHCP server. When a phone registers with its respective IP-PBX platform, E911 Manager receives an event with the IP address and



the MAC address of the registering phone, reviews the IP address and identifies the network region and corresponding location of the phone. E911 Manager then, in the case of Avaya and Nortel, writes the correct ELIN to tables in the Avaya or Nortel IP-PBX. If the phone dials 9-1-1, the correct ELIN is sent out. In the case of Cisco, a 9-1-1 call is held at a Cisco route point and E911 Manager dynamically provides the ELIN to the route point. E911 Manager also provides location record updates to the Pinnacle work flow system, which outputs daily ALI database updates to AT&T (PacBell) via modem. E911 Manager supports 9-1-1 call back for the CS2100 Nortel phones by supplying the correct ELIN upon phone registration and then updating the individual ALI record for the phone through Pinnacle and the AT&T ALI database.

E911 Manager has a robust scheduled task and events engine that enables automatic notification of completed tasks and events. This engine has been integrated into the University's notification system, MOM, so that notifications and events are delivered to voice and IP personnel in a standardized way. For example, if a phone registers but its location cannot be found, an event can be sent to the IT department so they can assess the root cause.

THE IMPACT

The University has met its objective of providing a fully automated E911 system that tracks IP phone location throughout the campus, hospital and new research facility. Beyond this, the University has achieved a new level of productivity because the system is fully automated and integrated with existing work flow and notification applications. With E911 Manager, the University is confident they know the location of every IP phone on the network and that emergency responders know the exact building location of any 9-1-1 caller. The system requires a light administration load because it is integrated into the existing work flow and network notification applications. The University also is ahead of the curve regarding E911 Legislation currently being considered by the California legislature. If California follows the lead of 15 other states that require E911 and passes legislation, the University is already compliant.

For more information on RedSky's software or services for higher education, visit our website at www.redskyE911.com or call us at 877-REDSKY1.