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Education Networks of America

ENA Case Study

ENA Improves Schools' Faxing Reliability by Moving ATA Fax Negotiations into Datacenter. Bridging the Gap with AudioCodes HTTPS Fax ATA Delivers Needed Control

Background

ENA believes a network is more than just a system of circuits and hardware. It's about connecting people and making the process of reaching and using valuable information as easy and reliable as turning on the lights.

Education Networks of America (ENA) was founded in 1996 and from the outset, ENA created one of the first statewide K–12 networks in the U.S., connecting all schools and school districts in the state of Tennessee.

Today, ENA offers district and statewide managed connectivity, communication and collaboration solutions as well as instructional and productivity tools.

As the nation's leading provider of Infrastructure as a Service (IaaS) solutions to school systems, libraries and governments, ENA serves six statewide contracts and many of the largest school systems in the country with one or more managed services including Internet access, wide area networks, interconnected VoIP and video services.

ENA connects over 5,200 end sites, 555 school districts and 295 libraries, serving more than 2.5 million students, teachers and administrators and more than 3.6 million librarians and patrons throughout the United States.

The Perfect Network

A service considered essential for schools and libraries is reliable fax communication. Shortly after launching its hosted voice over Internet protocol (VoIP) service, ENA began offering fax services to its customers using standard VoIP-based ATAs (analog telephone adapters) supporting T.38.

Unlike many other service providers who offer services over the open Internet, ENA manages the last mile, therefore providing the perfect environment for T.38 fax transmission. With this model, the typical burst packet loss and latency issues that can greatly affect longer SIP T.38 based fax transmissions are not present.

Having built their solution for the education and government markets, ENA demands absolute control in order to guarantee the highest standards of quality possible. An important part of their strategy is superior customer support, and this is a key driver for all product and service initiatives.

Problems Arise

Early on in their fax deployments, ENA began to see some reliability issues with the Fax-over-SIP ATA service. These issues were extremely difficult to troubleshoot and consumed many engineering and support resource hours, without clear conclusions.

After analyzing a number of these issues, ENA realized it needed to better understand customer use cases. This quickly turned into site visits and many hours spent with the fax machine 'stake holders', typically the front office staff. It quickly became apparent that these schools and libraries were not sending typical one or two page faxes.

Simon Weller, Director of Systems Architecture with ENA, remarked "Because we are working predominantly with K-12 Schools, and other municipalities, our customers have unique use cases for fax. Today, a lot of other companies might consider scanning and e-mailing large documents, but our customers still like to send 20-30 page faxes at a surprisingly high volume."

ENA discovered that these longer faxes were largely the cause of the fax reliability problems. Unlike managed carrier VoIP where the handset models, firmware and features are closely controlled, fax was a minefield of different fax machine brands with vastly different capabilities, and different interpretations of fax standards.

Challenge Identified

By using T.38 and G.711 over ATAs, all the negotiation (or lack thereof) occurred between these different fax machines. ENA realized it needed a much more reliable codec negotiation process, and this meant removing SIP ATAs from the equation, and centralizing as much of the fax flow as possible. They didn't want to handle fax call routing as an exception, as that would require a lot more equipment, management and support, thereby increasing ENA's operation costs.

"The challenge is when you've got codec negotiation being handled solely by the premises-based ATA, you lose all control", commented Simon. "You have to rely on the local and far end fax machines' ability to negotiate a protocol and speed you can support on your network. With Super G3 and G4 faxing becoming more and more common, that becomes an impossibility within the currently deployed hardware, associated standards and fax negotiation due to upstream carrier interconnects.

Solution

Knowing that SIP ATAs and the lack of centralized control was the chief problem in their deployments, ENA started looking for a solution. After searching the market, ENA found a strong partner in AudioCodes. They had an innovative solution that moved the critical fax negotiation process into ENA's datacenter and bridged the gap between the fax machine and the datacenter with HTTPS. By offloading the fax negotiation from the ATA, transporting the fax to centralized infrastructure, and then controlling the transmission to the destination fax number, the process become controlled and reliable. The link between the fax machine and ENA's datacenter could also remain real-time with no onsite storage of the fax. This was a service requirement by ENA.

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commented. "As with all of our products and services, we try to make it as easy for our customers as possible, and part of that service is we manage the hardware and provide all the inter-connections. Centralizing as much as possible keeps our support costs down and quality up."

Results and Back to Business

Success was quickly achieved with the new solution. To date, ENA has rolled out close to 1,500 Fax ATAs to customers in multiple states. With the AudioCodes HTTPS Fax ATA and Fax Connector solution deployed in ENA's core network, a highly reliable and easy to scale service infrastructure was built to handle ENA's unique fax requirements. By eliminating the weak links and gaining control of the fax transmission, reliability and customer satisfaction for fax services was greatly increased, something that customers have come to expect from an ENA managed service.
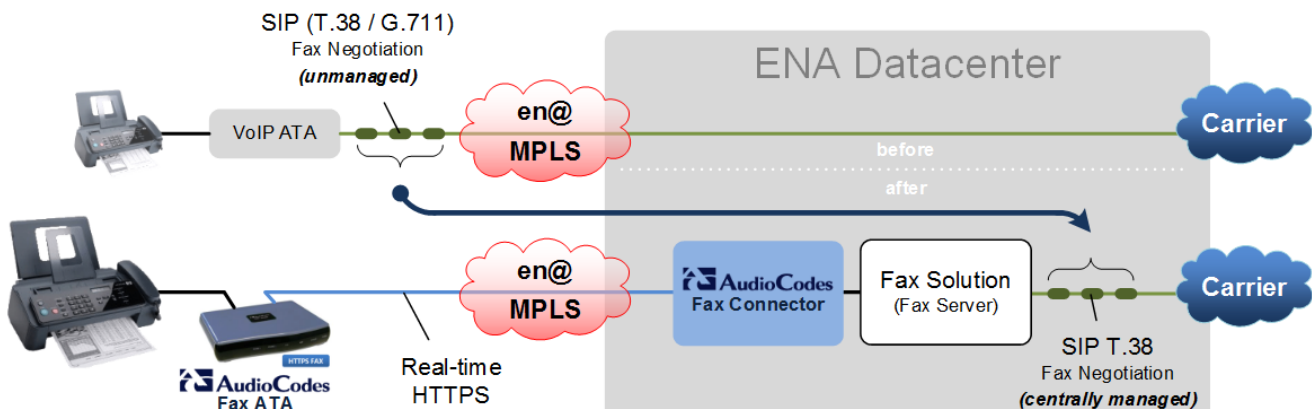
Gaining Control: T.38 / G.711 fax negotiation of the ATA is moved into ENA's datacenter where it can be fully manged.

AudioCodes HTTPS Fax ATA Solution

The AudioCodes Fax ATA, an HTTPS enabled version of the MP 20x series of Analog Telephone Adapters is a cost-effective, advanced fax product, which allows the connection of ordinary fax machines and Multi-function Printers (MFPs) to cloud-based fax solutions and premise-based fax servers using HTTPS.

Benefits of HTTPS Fax Connections

Utilizing AudioCodes' new real-time HTTPS fax architecture, and gaining from its accumulated experience in providing IP telephony solutions, the HTTPS Fax enabled MP202B combines superior fax reliability, security and cutting-edge features for end users and service providers alike. Preserving the easy and familiar experience of the fax machine, users can easily transition to VoIP based faxing no matter what type of connection is used; WiFi, satellite and cellular data connections.

Fax Connector Software

The solution includes the Fax ATA device and the Fax Connector which is backend software that connects the Fax ATA to existing fax solutions. The Fax Connector software is the connection point for deployed Fax ATAs and the fax solution that is sending or receiving faxes. It has two main functions, managing the HTTPS sessions of the connected Fax ATAs and communicating with fax solution that is sending or receiving faxes. The solution is highly scalable and supports various high available deployments.

For service or VoIP providers, the Fax Connector software is installed within their network or the cloud. Businesses using a premise-based fax server would install the Fax Connector software either next to or on their fax server system.

To learn more about Fax solutions from AudioCodes, visit: www.audiocodes.com.

About AudioCodes

AudioCodes Ltd. (NasdaqGS: AUDC) designs, develops and sells advanced Voice over IP (VoIP) and converged VoIP and Data networking products and applications to Service Providers and Enterprises.

AudioCodes is a VoIP technology market leader focused on converged VoIP & data communications and its products are deployed globally in Broadband, Mobile, Enterprise networks and Cable. The company provides a range of innovative, cost-effective products including Media Gateways, Multi-Service Business Routers, Session Border Controllers (SBC), Residential Gateways, IP Phones, Media Servers and Value Added Applications. AudioCodes' underlying technology, VoIPerfect HDTM, relies on AudioCodes' leadership in DSP, voice coding and voice processing technologies. AudioCodes High Definition (HD) VoIP technologies and products provide enhanced intelligibility and a better end user communication experience in Voice communications.

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Contact us: www.audiocodes.com/info
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