

# State of Delaware turns to Acme Packet for end-to-end multi-vendor IP telephony network

case study

## Executive summary

The State of Delaware sought a state-wide end-to-end IP communications infrastructure, to reduce expenses and improve collaboration. The state's Department of Technology and Information (DTI) turned to Acme Packet's high-capacity Net-Net Enterprise Session Border Controllers to address their demanding scalability and performance requirements.

Specifically designed to overcome the interoperability, service quality and security challenges enterprises often encounter when implementing end-to-end multi-vendor IP communications networks, Acme Packet E-SBCs enable the state to enjoy all the benefits of a state-of-the-art unified communications system without compromising service integrity or availability.

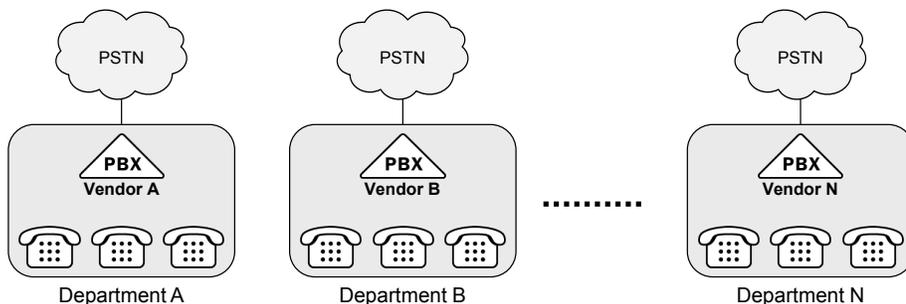
## Customer environment

The State of Delaware historically procured IT services and equipment at a departmental level. Each organization was free to select the IT solutions and providers that best met their particular financial and functional objectives. This autonomous approach to procurement led to system disparities, equipment incompatibilities and cost inefficiencies. In the telecommunications realm, the state had accumulated a disjointed telephony infrastructure comprised of disparate phone systems with independent PSTN trunks, separate voicemail systems and incompatible dial plans.

The state embarked on an aggressive program to centralize decision making and consolidate IT infrastructure under Department of Technology & Information (DTI) with the goal of improving employee productivity and collaboration, eliminating inefficiencies and reducing capital equipment and operations expenses. To that end, DTI set out to evolve the state's fractured TDM-based voice infrastructure into a uniform IP telephony network capable of delivering unified communications (UC) services across the state.

## Customer background

As the State of Delaware's central IT organization, the Department of Technology and Information (DTI) is chartered to exercise governance over the technology direction and investments of the state. Supporting the IT needs of over 40,000 state employees, the department delivers core services to all state organizations including the Legislative, Executive, and Judicial branches, public schools, and the various agencies and quasi-agencies that serve the citizens of Delaware. DTI is committed to delivering high quality and cost-effective services that meet or exceed user requirements. As part of that commitment, DTI implemented an end-to-end IP telephony network to improve communications and reduce equipment and operations expenses.



**The state's siloed telephony infrastructure was costly and inefficient**

## Business challenge

Constructing a multi-vendor end-to-end IP telephony network can be a challenge. Enterprises often encounter interoperability, service quality and security issues which can encumber deployment and lead to poor customer experiences, service outages and loss of productivity. Conventional IP networking products such as firewalls, routers and gateways weren't conceived with interactive IP communications in mind and leave networks vulnerable to security threats and VoIP quality issues. The state sought a session border control solution to mitigate protocol interoperability and interworking issues, protect their private IP network and ensure service quality. DTI originally evaluated a Cisco Unified Border Element (CUBE) solution, but quickly determined that the CUBE could not meet the state's high scalability requirements.

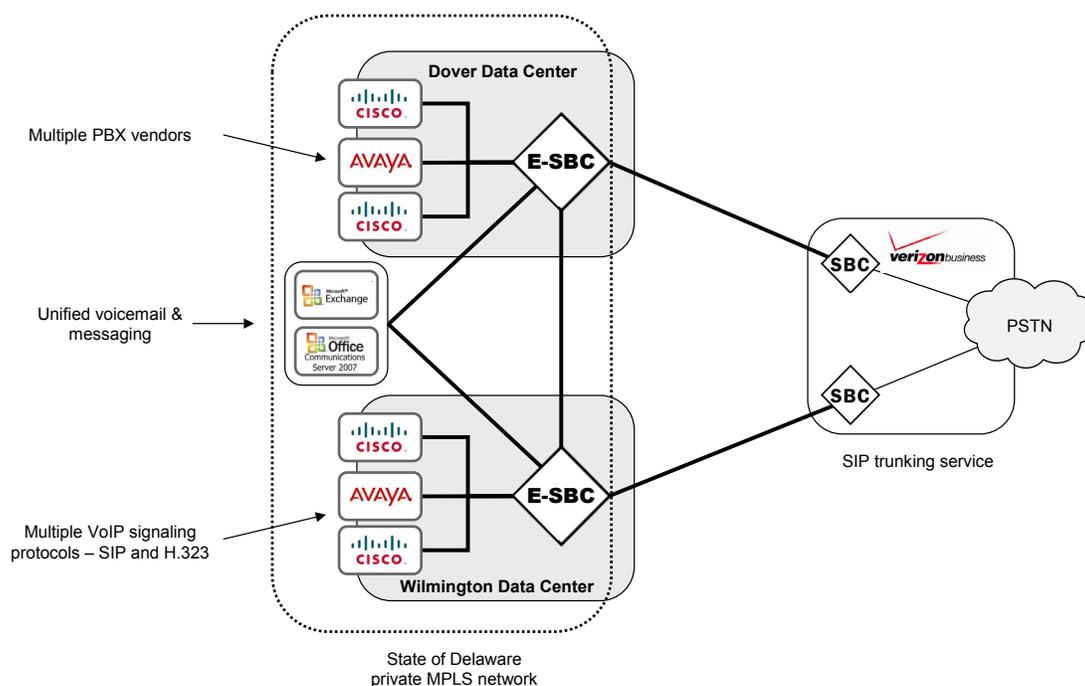
## Acme Packet session border controller solutions

DTI decided to replace the capacity-constrained Cisco equipment with Net-Net Enterprise Session Border Controllers (E-SBCs) from Acme Packet. Known for delivering performance and reliability, Acme Packet SBCs are used by 32 of the Fortune 100 enterprises and 90 of the world's top 100 service providers, including Verizon Business – the state's SIP trunk service provider. Acme Packet E-SBCs address critical IP communications security, interoperability and reliability challenges, plus provide centralized session routing and control functions which are instrumental for implementing uniform telephony services. Key features include the following:

- **Easy interoperability** – Acme Packet E-SBCs mitigate multi-vendor interoperability issues organizations often encounter when implementing end-to-end IP communications networks, plus they enable protocol interworking for integration with legacy systems.
- **Assured reliability** – Acme Packet E-SBCs ensure PSTN-like availability and service quality for IP communications. They enforce QoS, balance loads across trunks, and reroute sessions around interface failures to optimize network performance, circumvent equipment and facility problems, and ensure business continuity.
- **Strong security** – Acme Packet E-SBCs protect and control interactive IP communications infrastructure, services and applications, ensuring confidentiality, integrity and availability. They prevent fraud and service theft, and guard against malicious attacks and non-malicious incidents such as system overloads.

## Deployment model

DTI deployed Acme Packet Net-Net E-SBCs in their Wilmington and Dover data centers. The E-SBCs' comprehensive protocol interworking capabilities, rich session control functions and extensive SIP header manipulation features enabled the state to construct an end-to-end IP telephony infrastructure comprised of Avaya, Cisco and Microsoft solutions, with global dial plans and unified voicemail and messaging. The E-SBCs also serve as the termination point for Verizon's Burstable Enterprise Shared Trunking (BEST) SIP trunking service. The state installed a high availability (HA) configuration with redundant E-SBCs and interfaces to enable continued operation in the event of equipment or trunk failures.



**All communications systems consolidated into fully-redundant data centers for dramatically lower costs and higher availability**

## Results

Acme Packet E-SBCs let the state realize all the benefits of an end-to-end IP telephony network without sacrificing reliability, availability or security. State agencies enjoy lower costs and better service, and state workers enjoy the added convenience and productivity provided by the latest UC offerings. Key benefits of the unified IP telephony network include:

- **Lower OPEX and CAPEX** – by moving to an end-to-end IP network DTI was able to eliminate most of the state’s costly TDM PRI circuits, consolidate and centralize their connections to the PSTN and dramatically reduce telephony expenditures. The state now enjoys free agency-to-agency calling over their private IP network plus utilizes the Verizon SIP trunking service to significantly reduce PSTN access fees for external calls. In addition, with the new network architecture DTI was able to consolidate IP PBXs and UC servers to reduce capital equipment expenditures, energy costs and recurring maintenance fees as well as ongoing administrative and operations expenses.
- **Unified communications** – with Acme Packet, DTI was able to transform a siloed telephony environment into a modern IP-based unified communications system with 4-digit inter-agency dialing, global dial plans and unified messaging and voicemail. Diverse IP-PBXs and UC solutions from Avaya, Cisco and Microsoft all work in concert as part of an integrated end-to-end IP telephony network, with the Acme Packet E-SBCs mitigating interoperability issues between Avaya Communication Manager, Cisco Unified Communications Manager and Microsoft Office Communications Server (OCS).
- **Carrier-class reliability** – the Acme Packet high availability configuration provides hitless and stateful failover for SIP signaling and media sessions, ensuring continued operation in the event of equipment or trunk failures. High availability is critical for delivering outstanding customer service and maintaining employee productivity and satisfaction.
- **Rapid deployment** – Acme Packet helped DTI avoid compatibility issues which often hamper the roll out of multi-vendor IP telephony networks. The solution streamlined service deployment by overcoming multi-protocol interworking and multi-vendor interoperability challenges. The E-SBCs were installed, configured, thoroughly tested and deemed fully operational with the multi-vendor IP telephony infrastructure and the Verizon BEST service in a period of several weeks.
- **Industry-leading scalability** – the highly-scalable Acme Packet E-SBCs allowed DTI to overcome the capacity limitations of the Cisco Unified Border Element solution. The Acme Packet Net-Net E-SBCs deployed by the state can support up to 32,000 concurrent sessions.

***“The Acme Packet session border controller is the cornerstone of our unified IP communications system. Acme Packet addressed our high-capacity requirements and helped us resolve complex multi-vendor compatibility issues that were hampering our unification efforts. By implementing an end-to-end IP telephony network the state has reduced equipment and operations expenses while improving service levels and worker productivity.”***

Mark Cabry  
Lead Telecom Engineer  
Department of Technology  
and Information  
State of Delaware

## Future plans

The end-to-end IP communications infrastructure provides a solid foundation for the future. SIP has emerged as the protocol of choice for interactive IP communications and is supported in a wide variety of UC applications and devices. Going forward, the state plans to introduce SIP-based video and other interactive communications tools to improve collaboration and enable state agencies to better serve the citizens of Delaware.

DTI is also working with neighboring states to implement an emergency communications infrastructure as part of the Federal Highway Administration’s fiber broadband initiative. Acme Packet E-SBCs will play a key role in peering the state’s SIP infrastructure with other state networks.



100 Crosby Drive  
Bedford, MA 01730 USA

t +1.781.328.4400  
f +1.781.425.5077  
[www.acmepacket.com](http://www.acmepacket.com)

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