THE EXCEL NETWORK

INTRODUCTION

Excel Telecommunications is a dynamic, growth oriented, nimble organization. Fueled by Telecom and IP veterans with thousands of hours in Network Engineering, Operations, Administration and Support experience and a strong desire to provide customers with an unequaled feeling of attention and responsiveness, the Excel team is committed to providing telecommunications solutions that make sense and will “go that extra mile” to ensure expeditious turn up and uninterrupted performance.

THE SWITCH

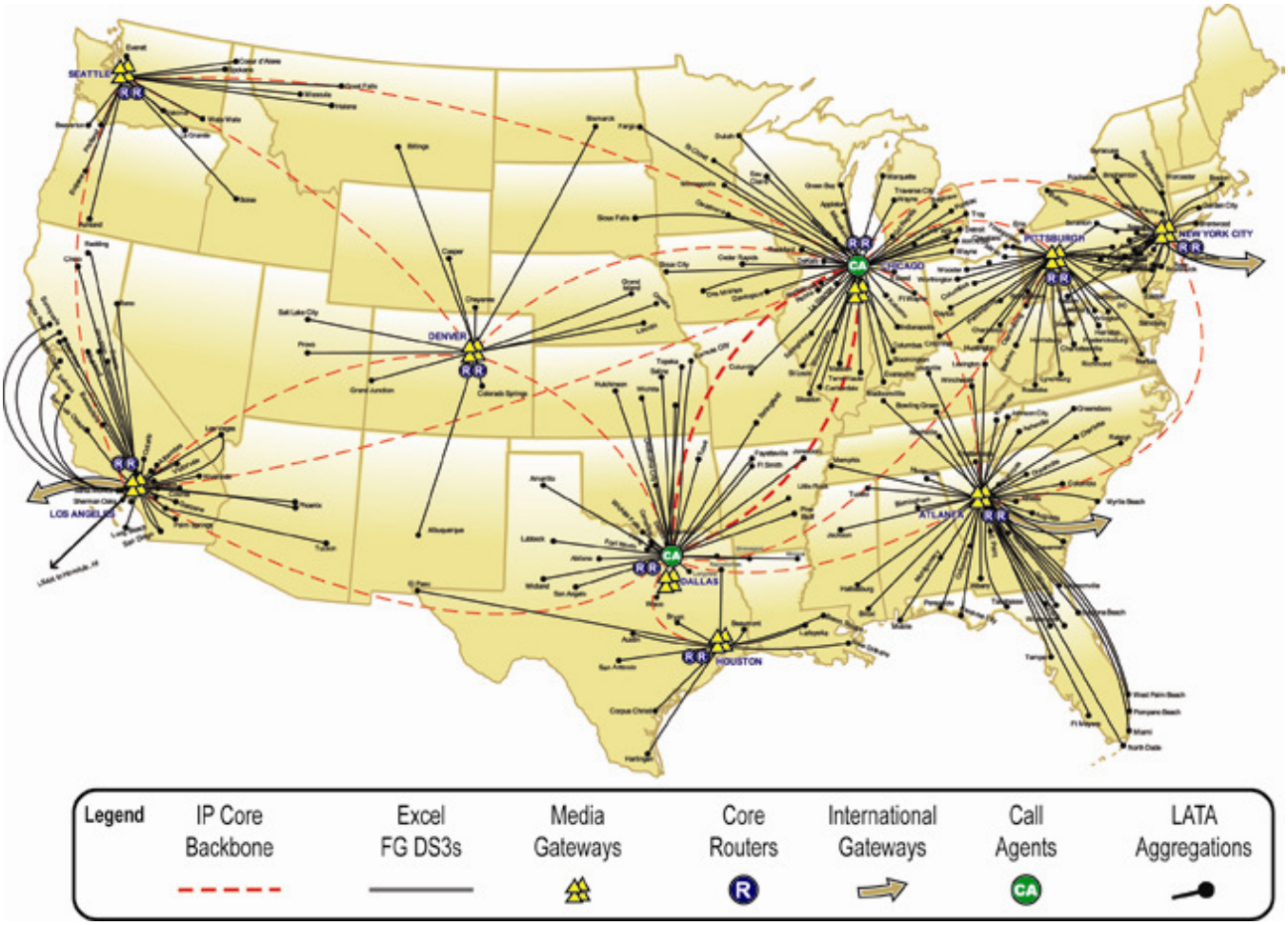
Excel uses a next generation switching platform to facilitate call and data transport across one of the few native nationwide FGD networks deployed today. The switch is true to an IP switch network design and features geographically redundant call processing elements that message via MGCP to media gateways placed at the edge of the network. Also true to classic IP switch design is the decomposition of legacy switch functions and the hardware that supported them. The switch boasts a wide range of value added features that can be supported on board or via out board databases. Service creation is core code independent and thereby makes time to market much shorter than in legacy equipment networks.

Each switching function is serviced by independent, geographically redundant server elements. Functions such as signal and SS7 handling for PSTN originated calls are processed in a call control pair. ISUP and TCAP messaging is handled in several signaling gateway pairs that then communicate with STP’s that are also geographically diverse. A central and fully redundant element management system processes all housekeeping and administration activity while routing, service features, IP call protocol handling and numerous other elements provide single minded attention to a given task. Call translation through the switch is extremely flexible and nested structures can absorb a wide range of response to network and equipment requirements. Additionally, there is a unique ability to manipulate call detail and incoming and outgoing ISUP and SIP messaging in order to facilitate more robust interop-ability in a very dynamic global technology marketplace. The switch also records all activity and offers the ability to capture a call, translate to a text file and allow a very quick insight to the nature of a problem.

The elements communicate with one another using SCTP and UDP over dedicated and redundant GigE circuits. Each element reports alarms, call state and channel assignment as well as the various aspects of switch operation, administration and maintenance to the element management system (EMS).

The media gateways are designed with the same redundancy that was relied upon in a legacy network. The media gateways are integrated into the same EMS provided by the call control switch vendor and provide yet another layer of protection against interoperability issues. Call handling and transport interface components on the gateways use a N+n scheme while the circuit level interface components use an N+1 redundancy scheme. There are redundant Fiber Ethernet interfaces from each gateway and these are connected to redundant layer 2 switches. The media gateway provides the conversion of TDM call signaling to IP packets. Numerous algorithmic processes provide protection from noise, jitter, silence suppression, packet payload and latency while connected to the distant end gateway. Excel maintains a G.711 standard within the private network to further ensure call quality and enhanced reliability. The passage of DTMF tones and fax are fully supported and based on RFC recommendations. Samples of the supported protocols include SS7/TCAP, ISDN, SIP, H323, echo cancellation and various compression codec’s.

EXCEL NETWORK MAP

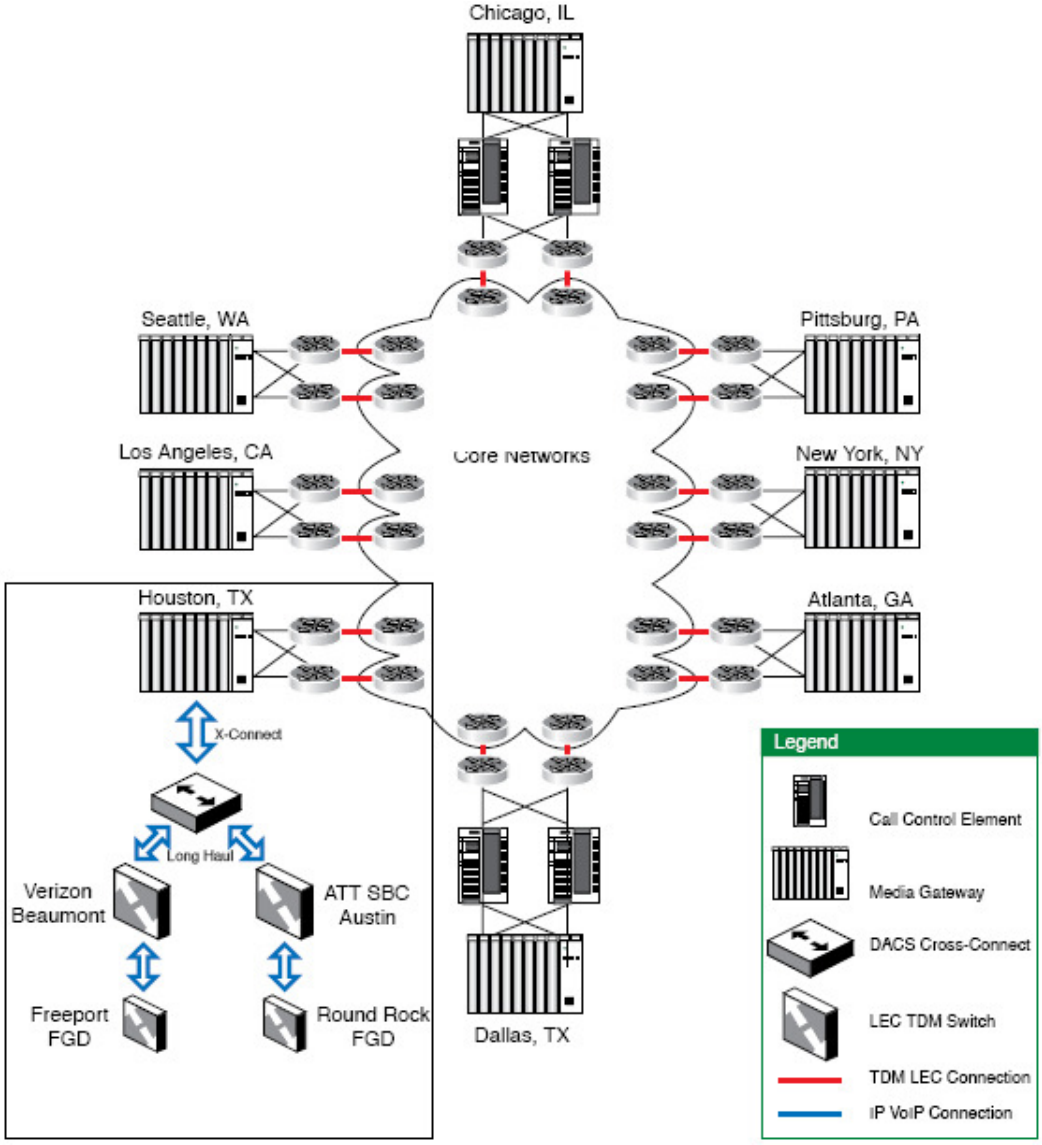


Excel Telecommunications operates one of the few nationwide native VoIP networks in the U.S. that can interface with SS7, ISDN, DTMF and VoIP protocols. Our state of the art network design incorporates various next-generation soft-switches, application servers and devices that utilize SIP, 323 and MGCP protocols.

The first implementation of a 100% native VoIP Network with ubiquitous Feature Group D (FGD) coverage in the United States; enabling Excel to originate and terminate traffic over Excel's own network virtually anywhere.

Excel's network has been engineered for carrier-grade performance with built-in redundancy, including our soft-switch, core backbone routers, SS7 signaling lines and re-routing elements.

NETWORK ARCHITECTURE



Network Architecture Benefits:

- **Network enabled to provide next generation VoIP telecommunications services.**
- **IP & TDM Interconnectivity for customers.**
- **Enhanced routing efficiencies and quality control management.**
- **FGD Equal Access network**
- **Dallas and Chicago provide geographic diversity and redundancy to call control elements.**

BOUNDARY PROTECTION AND TRANSCODING

Excel uses Acme Packet Session Border Controllers (SBC). Acme is an industry acknowledged leader in VoIP security and quality of service (QOS) handling. The SBC's provide critical protection from Internet Denial of Service attacks at the SIP edge customer interconnect.

Using a "network within a network" architecture, SBC's are located in all major sites so that traffic can be routed optimally, and if necessary, routed around a problem site. The SBC's also provide a peering arrangement with various IP networks thereby providing security, QOS and cost control at the ingress and egress access points.

To support customer demand for lower bandwidth cost Excel, also employs state of the art Acme's Transcoders to enable numerous codec's including G711u, G711a, G729, H323 and T.38. All codec interoperation is performed on a call by call basis at the SBC so any potential transcoding conflicts are handled outside the Excel private network. The SBCs and Transcoders have been strategically deployed at key points in the network to support high availability and geographic redundancy.

THE TRANSPORTATION NETWORK

The Excel transport network provides best-in-class services that are the result of a fully redundant core network of equipment from Cisco and Juniper that is distributed across all switching sites throughout the country. Each site is fully meshed over redundant providers to maximize capacity and network uptime. In addition to the dedicated private network components, Excel peers with multiple DIA providers giving us a redundant DIA presence across the country.

NETWORK OPERATIONS CENTER

The Network Operations Center provides support on a 365X24x7 basis. The NOC is responsible for monitoring network alarms including switch elements, IP core switches/routers, SBC/Transcoders and switch site environmental alarms. This dedicated team is key to providing the highest level of responsiveness and shortest path to resolution, enhancing Excel's ability to provide a high quality and efficient network. Routing updates are performed nightly and repetitive maintenance tasks are undertaken on a scheduled basis. The NOC is the central point of contact for all network activity.