VOXO Tech Overview

Geographic Redundancy and High Availability

At the border --> Kamailio

The Net to Net Kamailio is configured to act as an SBC for all incoming SIP requests. Providing control functions to deliver trusted, first-class interactive communications—voice, video and multimedia sessions—across all IP network borders.
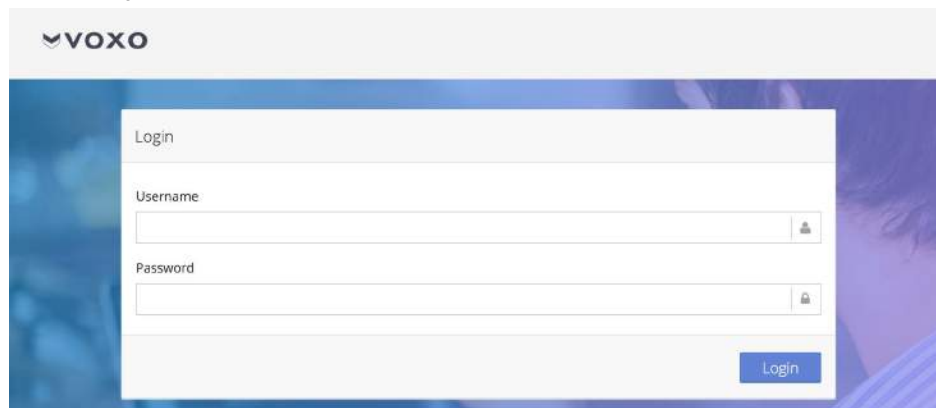

To the Switch --> Asterisk

VOXO runs the best in breed applications servers to accommodate complicated routing and stability across the growing network. Asterisk and is responsible for the execution of all enhanced personal and group features. The server's database maintains user and group profiles, as well as service and subscription data. The Application Server supports a variety of access side protocols in including SIP, MGCP and NCS.

To the Control Layer --> Portal

The VOXO platform is available to customers and introduces simplified DID management as well as account management. The VOXO portal allows for configuration of new accounts via simple to use methods provided by VOXO to allow for speedy deployments in a hosted PBX environment. E911 for users and groups can also be managed via the VOXO portal to avoid manual swivel chair process.

To the Carrier --> GENBAND S3

The S3 is utilized for peering with our Tier 1 carriers to provide connectivity to the PaaS as well as SIP Trunking in a Class 4 environment. Through the combination of adaptive security, insightful policy enforcement, any-to-any interworking, and advanced session routing capabilities, the S3 brings advanced level of intelligence to the VOXO IP network borders for deploying IP Interconnect, IPX, Hosted Unified Communications, SIP Business Trunking, consumer access, and VoLTE.

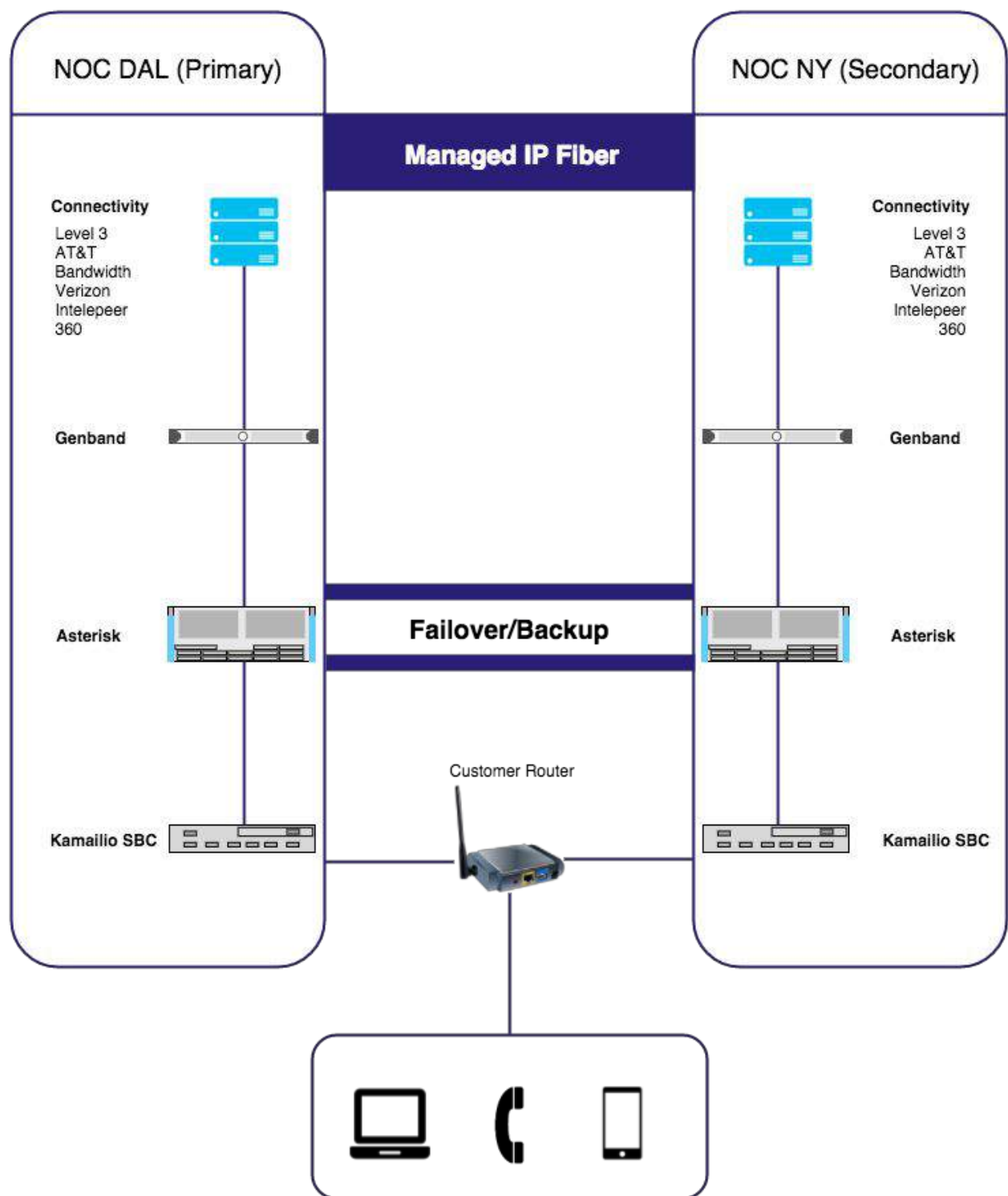**To the Call Monitoring --> VOIP Monitor**

VoIP Monitor is platform used to oversee activity on the VOXO platform. VoIP Monitor reporting and real-time call monitoring allow for extensive insight into KPI/Metrics, Calls, Voice Quality, Registrations, User Devices, and Trunks. Also, leverage key indicators to identify, troubleshoot, and resolve issues for enhanced IP network service assurance.

Platform Diagram

NOC DAL (Primary)

NOC NY (Secondary)

Managed IP Fiber

Connectivity

Level 3
AT&T
Bandwidth
Verizon
Intelepeer
360

Connectivity

Level 3
AT&T
Bandwidth
Verizon
Intelepeer
360

Genband

Genband

Failover/Backup

Asterisk

Asterisk

Customer Router

Kamailio SBC

Kamailio SBC

Balancing and Failover

For true redundancy, 2 of each node exist in each datacenter in order for immediate local failover and load balancing. Each SIP request is prioritized for the Dallas cluster by utilizing DNS SRV records.

Dallas LAN (Primary) Data Center
- (2) Kamailio Series
  - Active-Active failover and load balancing using SRV
- (2) Asterisk
  - Shared Database and redundancy
- (2) GENBAND S3
  - DNS Failover using SRV

NY LAN (Secondary) Data Center
- (2) Kamailio Series
  - Active-Active failover and load balancing using SRV
- (2) Asterisk
  - Shared Database and redundancy
- (2) GENBAND S3
  - DNS Failover using SRV

The High Availability configuration allows for exceptional uptime and data redundancy between multiple East and Central Coast Data Centers. Connectivity between the East and Central Coast is provided by Level3 on a private 1GB DIA.

Data Centers

Dallas - 1221 Coit Road Plano, TX 75075

NY - One Enterprise Ave North Secaucus, NJ 07094

Dallas Data Center

Internap's premium data center in the DFW metroplex provides enhanced connectivity and seamless hybridization of colocation, managed hosting and cloud environments. One of the most power-dense facilities in the region, our Dallas data center's modular design and high efficiency cooling options provide superior flexibility and plenty of room to grow.

**1221 Coit Road
Plano, TX 75075**

Internap's Dallas facility offers:

Convenient Location: Located in the heart of the Silicon Prairie, adjacent to many Fortune 500 companies with convenient access to highways, airports and hotels.

Power Density: Modular UPS units and high-efficiency cooling options enable power density of up to 18kW per rack.

Hybrid Hosting: Seamlessly connect colocation, hosting and cloud environments within the facility to lower bandwidth costs and maximize application performance.

Remote Management: View and manage your colocation environment remotely. Reboot servers, check power utilization and environmentals and monitor bandwidth all via a single interface.

Resiliency: Designed for concurrent maintainability of generators, UPS and cooling modules, maximizing the uptime of your environment.

Energy-efficient Design: Committed to providing a better working environment by consuming fewer fossil fuels, reducing greenhouse emissions, minimizing the impact on land.

Carrier Diversity: Robust carrier-neutral Meet-Me-Room, including alternative transit and local access options.

Low-latency Connectivity: Internap's multi-homed route optimized Performance IP™ provides links up to 10GB through multiple top-tier carriers.

On-Site Personnel: Data center engineers and technical support staff are on-site 24/7, proactively monitoring facility vitals.

Security: Closed-circuit television systems, 24/7 on-site security personnel and biometric, electronic and key card locks for increased security.
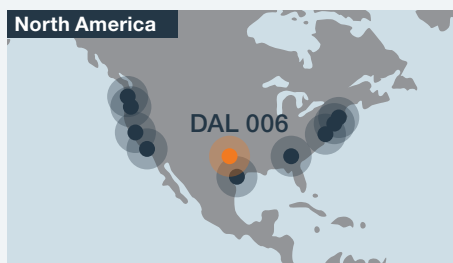
INTERNAP®

Technical Site Specifications

Location and Site Information

Address	1221 Coit Road Plano, TX 75075
Colocation Space	55,000 square feet
Floor Type	Antistatic raised floor with 36 inch clearance
Loading Dock	Access for all size trucks
Roof Rights	Yes
Number of Entrance Vaults	2
NPA / NXX	972-312

Site Structure

DC Build Year	2011
Number of Floors	Two w/ mezzanine
Structure Type	Structural steel, reinforced concrete
Exterior Type	Masonry
Seismic Rating	Zone 1B
Ceiling Clearance	15 foot
In Flood Plain	No

Fire Protection

Wet or Pre-action	Both
Number of Zones	2 Pre-action
Smoke/Heat Detection	Yes - VESDA
Sub-Floor Detection	Yes
Remotely Monitored	Yes

Environmental Control

CEU Quantity	(3) 350 ton chillers, expandable to 11
Cooling Type	Chilled water
Redundancy	Yes - N+1 with Concurrent Maintainability
Heating Type	Electric
Humidification	Ultrasonic

Security

CCTV	Yes
CCTV Recorded	Up to 90 days
Intrusion Detection	Yes
On-site Guards	Yes
Guarded Presence	24/7
Card Access	HID proximity card readers / biometrics
Access Control	Biometric & card reader

Power

Electric Utility	Reliant (Oncor)
Power Feeds	(2) 3 MW circuits, expandable to 20 MW
Redundant Power Feed	Yes
Generator	(3) Detroit Diesel expandable to 11
Generator Size	2 MW
Generator Fuel	Diesel
UPS	(3) APC, expandable to 11
UPS Size(s)	1.2 MW each
Battery Type	VRLA
Battery Life at Full Load	20 minutes
Electrical Infrastructure Redundancy	Yes - N+1, Concurrently Maintainable
Harmonic Filters	Yes
Remotely Monitored	Yes

Carrier Neutral Meet-Me-Room

Cogent	Alpheus
Zayo	AT&T
FiberLight	Level 3
Time Warner Cable	Unite Private Networks
TW Telecom	GTT (Tinet / Tiscali)
Verizon	Consolidated Communications
FPL FiberNet	

Internap IP Network Carriers

AT&T	Cogent
Verizon	GTT
Century Link	XO Communication
Sprint	Telia
NTT	

Global Platform of Colocation and Hosting Facilities

North America

DAL 006

EMEA

Asia Pac

New York Metro Data Center

Internap's premium, carrier-neutral data center located in Secaucus, N.J., is within easy access of the bridges and tunnels into Manhattan, the NJ Turnpike, the Secaucus Junction train station and the New York metropolitan area's three international airports. One of the most power-dense facilities in the region, the New York Metro data center offers plenty of room to grow, utilizing a superior modular design to allow for enhanced flexibility and increased reliability.

**One Enterprise Ave North
Secaucus, NJ 07094**

Internap's New York Metro facility offers:

Power Density: Modular UPS units and high-efficiency cooling options enable power density of up to 18kW per rack.

Remote Management: View and manage your colocation environment remotely. Reboot servers, check power utilization and environmentals and monitor bandwidth all via a single interface.

Hybrid Hosting: Seamlessly connect colocation, hosting and cloud environments within the facility, maximizing application performance and lowering bandwidth costs.

Resiliency: Designed for concurrent maintainability of generators, UPS and cooling modules, maximizing the uptime of your environment.

Energy-efficient Design: LEED Platinum and ENERGY STAR certified. Design components include variable frequency drives on chillers and pumps and cold aisle/hot aisle containment zones.

Speed to Market: Grow as quickly as your business demands with modular power, space and connectivity elements.

Carrier Diversity: Robust carrier-neutral Meet-Me-Room, including alternative transit and local access options.

Metro Connect: Switched layer 2 network connectivity between NYJ004 data center and 755 Secaucus Rd. via a resilient, Internap-managed metropolitan network. High-availability access to over one hundred networks and service providers.

Low-latency Connectivity: Internap's multi-homed route optimized Performance IP™ provides links up to 10GB through multiple top-tier carriers.

Amenities: Fully equipped office space, technical workspace and full service lounge with DIRECTV, Xbox and vending options.

On-site Personnel: Data center engineers and technical support staff are on-site 24/7, proactively monitoring facility vitals.

Security: Closed-circuit television systems, 24/7 on-site security personnel and biometric, electronic and key card locks for increased security.

Energy
Green-e

INTERNAP®

Technical Site Specifications

Location and Site Information

Address	One Enterprise Avenue North Secaucus, NJ 07094
Total Space	101,500 square feet
Floor Type	Antistatic 36" raised floor
Loading Dock	Easy access for all size trucks
Roof Rights	Yes
No. of entrance vaults	2 diverse vaults
NPA/NXX	201-864
Flood Risk	Outside 500-yr flood plain

Site Structure

DC Build Year / Year Started	Built in 2012; Data center improvements in 2013
Number of Floors	1
Structure Type	Structural steel, reinforced concrete
Exterior Type	Concrete tilt panel
Seismic Rating	Zone 2A
Ceiling Clearance	12 feet

Fire Protection

Wet or Pre-action	Both
Number of Zones	2 pre-action
Smoke/Heat Detection	Yes
Sub-Floor Detection	Yes
Remotely Monitored	Yes

Environmental Control

CEU Quantity	(3) 400 ton chillers expandable to 10
Cooling Type	Chilled water
Redundancy	N+1 with concurrent maintainability
Heating Type	Electric
Humidification	Electric

Security

CCTV	Yes
CCTV Recorded	Up to 90 days
Intrusion Detection	Yes
On-site Guards	24/7
Card Access	HID proximity card readers
Access Control	Card reader

Power

Electric Utility	Public Service Electrical & Gas (PSE&G)
Power Feeds	2 diverse feeds; 5 MW expandable to 20 MW
Redundant Power Feed	Yes
Generator Size(s)	(3) 2 MW expandable to 10
Generator Fuel	Diesel
UPS Size(s)	(3) 1.4 MW expandable to 10
Battery Type	VRLA
Battery Life at Full Load	10 minutes
Electrical Infrastructure Redundancy	N+1 with concurrent maintainability
Harmonic Filters	Yes
Remotely Monitored	Yes

Carrier-Neutral Meet-Me-Room

Cogent	Comcast
Cross River Fiber	Fibertech Networks
Lightower	Sunesys
Verizon	Zayo
Lightpath	

Internap IP Network Carriers

AT&T	Cogent
Telia	Global Crossing
Inteliquent	Verizon
Zayo	XO Communications

Metro Connect

Low latency Layer 2 connectivity to over 100 carriers available at 755 Secaucus Rd.

Global Platform of Colocation and Hosting Facilities

North America

NYJ 004

EMEA

Asia Pac