DE-CIX

Where networks meet

DE-CIX NGN Services

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Where networks meet DECIX



Structure DE-CIX Internet Exchange



- 10 DWDM MUX 32 Channel
- 11 2xBrocade MLX32 and 1xForce10 Exascale 1200i per Core



Building an NGN Interconnect Platform at DE-CIX

- Establish an NGN interconnect platform at existing DE-CIX sites using the existing DE-CIX infrastructure
- Enhance existing service offers i.e. direct lines (P2P) as well as group services (P2MP) with a public NGN-Exchange
- Redundant star structure, 1:1 relationship for session-border controllers
- Central quality control and session validation with defined SLAs using proven, field hardened technology (provided by Xconnect)
- Todays typical services: Voice, HD voice, video telephony, etc.



Example: Voice Services with VORTEX

- Exchange of voice routing and traffic data
- Fully integrated with existing services & procedures (ITEX-PDA number portability, administrative processes, etc.)
- Staged introduction:
- Termination for zone +49 / national carriers
- Termination for zone +49 / national and international carriers
- Termination for international numbers through national/international carriers (full exchange)

• No cost structure for potential settlement advocated or enforced by DE-CIX (peering style: participants may require individual contracts between parties and might request termination fees on an individual base)











GlobeVOIX Benefits

- Increase/Retain revenues from NGN services which operate across networks
 - Calls do not transit the TDM PSTN
 - Video Telephony, HD Voice,
- Reduce effective interconnect costs
 - Avoid 'TDM-VoIP' gateway costs
 - Single interconnect to implement and administer
 - Number portability corrected routing
- Increase VoIP Quality
 - Avoid 'transcoding' degradation between VOIP and PSTN
 - Support higher quality voice
 - Calls go directly to the owning network
 - SLA backed IP performance

GlobeVolX Exchang - Components



- Vortex NP Database
 - Regulated Authoritative records of TN to SP mapping
- Vortex Registry
 - TN to SP to Route mapping (sync from Vortex DB)
 - Central routing and policy server
 - ENUM or SIP query from Hub
- Directory Server
 - Support Registry Edge query
 - from SP network (SIP/ENUM

DE-CIX Peering Network

- Private, Dedicated SLA-backed transport layer on DE-CIX network
- Connects customers to VoIP
 Exchange elements



DE-CIX Where networks meet



- (1) SP A user dials +49789
- (2) SP A network queries Edge DS (SIP or ENUM).
 - Registry checks that the B TN is reachable via the Exchange
 - Returns the SIP address of the Interconnect Hub.
- (3) SP A sends SIP call to Hub.
- (4) Hub queries Registry
 - Registry checks A/B TN
 - Is call allowed ?
 - Returns SIP address of SP C.
- (5) Hub forwards SIP call to SP C, (with interworking as required) and onward to SP C user.
- (6) Subsequent SIP/Media relayed via hub.



- Registry supports three 'services' for GlobeVoIX produce
- Number Portability Query
 - Registry returns a 'prefix' before the B-number indicating the 'owning SP' for the TN
 - Synchronised with German Authoratitive NP database
 - ENUM NAPTR query or SIP with Redirect
- Edge Query Server for GlobeVoIX Exchange
 - SPs query the Registry Edge Server to determine if the B TN can be reached via the Exchange
 - Registry returns SIP address of the GlobeVoIX SIP Hub for allowed calls
 - ENUM NAPTR query or SIP with Redirect
- Central Routing and Policy Server for GlobeVoIX Exchange
 - GlobeVoIX SIP Hub queries the Registry
 - XConnect Proprietary ENUM Query (includes Originating SP, A number, Codec)
 - SIP with Redirect
 - Registry uses A and B side information to check 'policy' and return terminating SP route

9 Architecture DE-CIX Where networks meet

Provisioning and Management

- **Provision and Publish Interfaces**
- Synch and Monitor of Directory Servers
- Secure ENUM Database
- **Reporting and Management**
- **Distributed Directory Servers**
 - Query via SIP, ENUM, SOAP/XML
 - Super-Query to External Registries
 - Encrypted communications and storage
- **Rich Routing and Policy Control**
 - A no., B no., meta-data, signalling data
 - Support for multiple applications
- **Carrier Grade Availability and** performance





- Registry supports a GlobeVoIX Private Infrastructure ENUM service
 - Private tree resolving to Service Provider level routes with NAPTR records
 - tel routes with prefix for NP query only (SP has no Exchange Interconnect)
 - SIP routes for SPs with GlobeVoIX interconnects
- 'Route' returned depends on Registry Policy and Routing Functions
 - Type of service (NP, Edge, Central Route)
 - Is SP A TN allowed to call SP B TN ?
 - If SP A TN calls SP B TN what route should be returned ?
- Policy and routing are determined from Registry logic and fixed data plus 'signalling' data received
 - Originating SP (originating IP/domain) and B number
 - A number, other SIP signalling data (user agent, codec)
- Use of ENUM as the query protocol limits the routing and policy richness that can be provided
 - Standard ENUM only provides Originator and B number
 - Enhanced ENUM is not commonly supported by NGN elements



- DE-CIX/XConnect will work with German Regulators to ensure GlobeVoIX Registry complies with any regulated ENUM developments in Germany
 - DE-CIX is committed to openness and neutrality
 - Registry can support multiple ENUM trees
- Integration with other Registries/Databases
 - Registry can support delegation (to/from) enabling customers to manage their own internal TNs and routes
 - Registry supports 'Superquery' to other Registries (eg GSMA Pathfinder)

Thank you

Join DE-CIX now!

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