

CAT-iq in the Enterprise: Challenges and Opportunities

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A brief introduction to NEC's global organization

One of the world's leading providers of computer, broadband, mobile network & enterprise business solutions

- Revenues: €29,8 billion (Fortune Global 200)
- Employees: 142,358
- R&D spend: over € 2.2 billion with 12 worldwide facilities
- Major operations: IT/Network Solutions (64%), Mobile/Personal Solutions (20%), Electronic Devices (16%)
- Mobility: Mobile, FMC, PHS, VoWLAN, Femto-cell and LTE



NEC is committed to DECT

- NEC Unified Solutions
 - Wholly-owned subsidiary of NEC Corporation
 - Acquired Philips Business Communications
 - NECs core competence centre for DECT
- At the forefront of DECT technology developments
 - early **1990s** - Standardisation to enterprise DECT
 - **1993** - Embedded multi-cell product
 - **1994** - Market ready DECT solution
 - **2002** - IP DECT offer launched
 - **2007** - Standard SIP interface, various 3rd party PBX platform certifications
 - **2008** - Dual band (GPS controlled) solution for Cruise Lines
 - **2010** - Accurate Location Solutions with Ekahau
 - **2011** - Towards new CAT-iq standards



Portfolio Overview

Unified Communications
Business ConneCT



Unified Messaging
UM8000



MA4000 - Systems and
Expense Management

SP30 - softphone



Smart
Mobile
Client



WLAN
handset



IP DECT handsets



Digital and IP terminals
DT300/DT700 range



UNIVERGE® SV8300 server
19-inch



What is Different about the Enterprise Market?

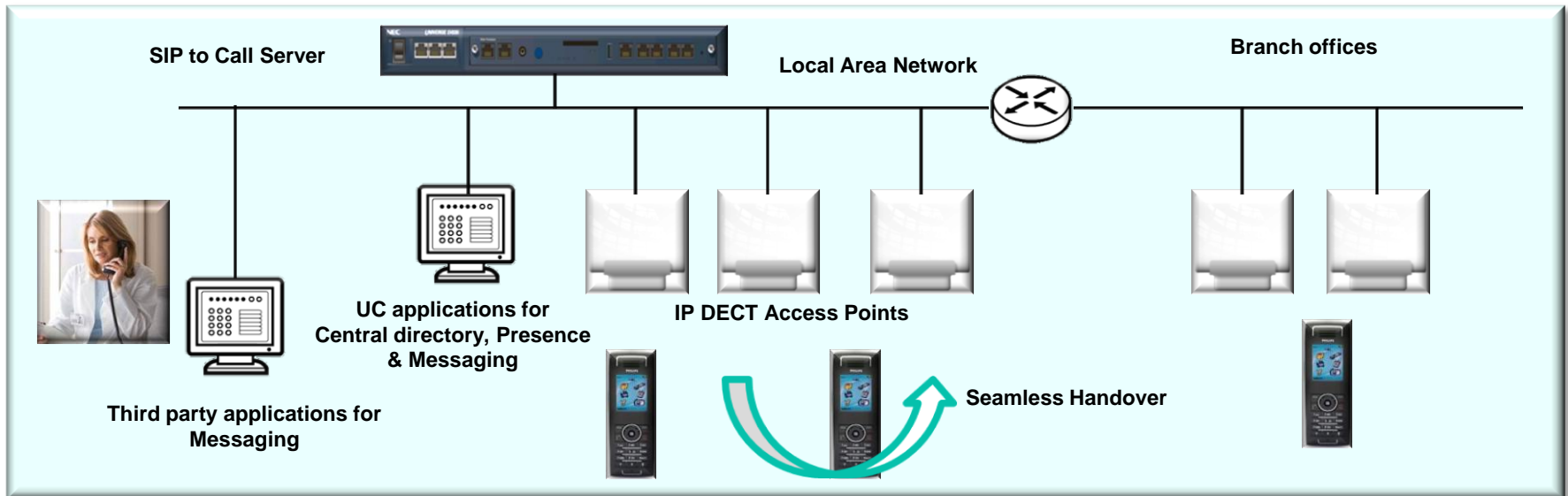
- Large premises: always multi-cell installations
- Long-term investment/long life cycle/upgrades required
- Compatibility with installed base (handsets, base stations, PABX)
- End user needs are different
- Large customers: dedicated solutions
- Enterprise market: lower volumes, but higher added value and higher margins



What is Different about the Enterprise Product?

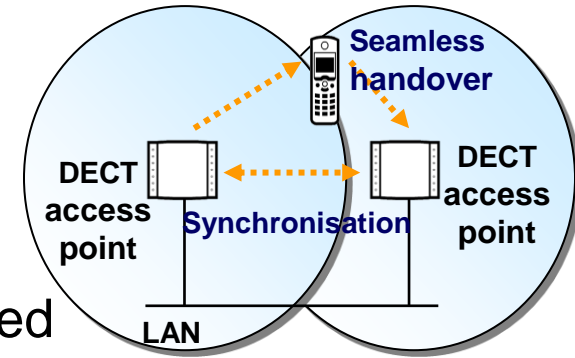
■ PABX

- Link between DECT and public network
- Many advanced features are implemented in the PBX (transfer, forward, conference calls, central directory,...)
- These features need to be implemented in the PABX
 - Compatibility with wired extensions
 - Integration with computer network (CTI)



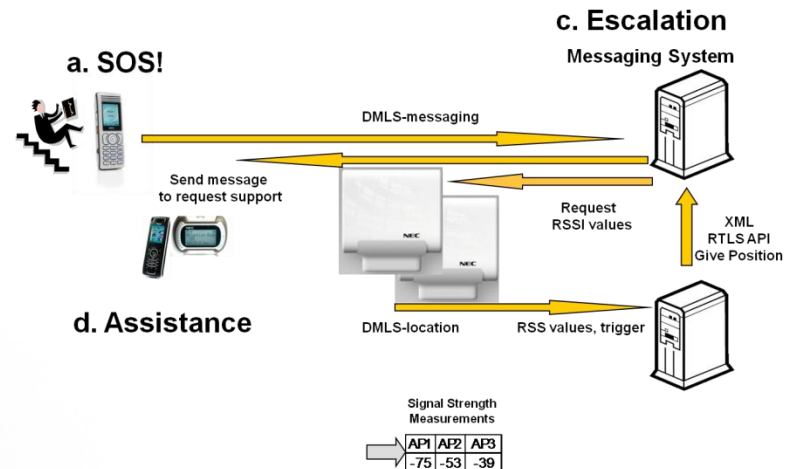
What is Different about the Product? continued

- Multi-cell issues
 - Handover and synchronisation
- Life cycle issues
 - Long term investment: Software updates required in order to keep up with changing customer requirements
 - Mixed environments: Compatibility required
 - Generic products. Access points and handsets will work in any defined country according to local requirements
 - Tailored to customer needs:
 - Cruise ships (GPS based frequency switch)
 - Two networks join when cruise ship arrives at island
 - Security (location detection and messaging)
 - Workflow management



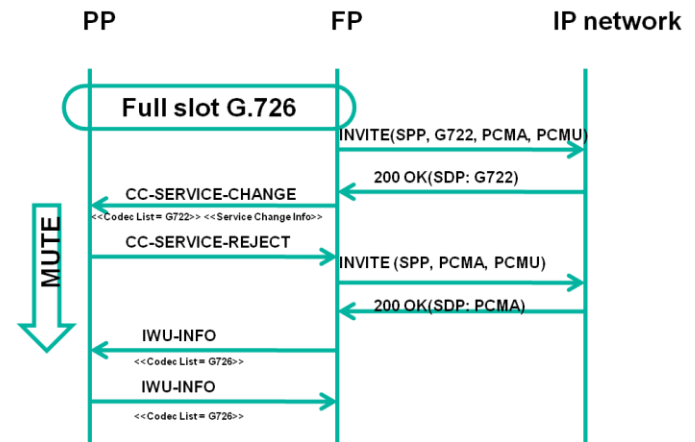
CAT-iq in the Enterprise Market

- WB audio
 - Improved sound quality
 - Good selling point, in particular for conference calls
- Light data services
 - Software Upgrade over the air (SUOTA)
 - Currently proprietary software downloading
 - Access to web services (business)
 - Hotels/hospitals: work flow management
 - Staff safety
- Ultra Low Energy (ULE)
 - Asset tracking
 - Tags in combination with location detection



Technical Challenges for Long Slots

- Installed Base. Need to support mixed environment of CAT-iq/non-CAT-iq equipment
- Multi-cell issues
 - Cannot guarantee long slot capability in whole system
 - Long slot may not be available on the new base station due to existing traffic
 - Changing from full slot to long slot
 - Takes time: Mute
 - Chance of failure
 - Who takes the initiative
 - Paging dependent on service.
- With increased channel occupancy, capacity may become an issue. Need to take this into account during site survey



Technical Challenges for ULE

- RSSI based location detection for asset tracking
 - DECT ULE device scans for 5 strongest base stations
 - These values need to be transmitted to one of the base stations
 - We know it works for DECT. Is it accurate enough for ULE devices?
Trade off with power consumption
- Integrate movement sensor to minimise power consumption: only measure and transmit RSSI when moving
- Design considerations:
 - Location accuracy versus battery life
 - Is it possible to design an accurate tag location system with battery life > 1 year?



CAT-iq certification

- CAT-iq 2.0-2.1 certification not feasible as many of the features are
 - Not relevant
 - Already implemented in PABX
- In enterprise business: software upgrades required. Not feasible to re-certify with every software version



Enterprise IP DECT moving into the future

- With CAT-iq enterprise market will benefit from a number of new capabilities

- Wide Band Audio
- Enhanced security
- Ultra Low Energy (tags for location)
- Web enabling of applications



- Handsets and Access Points will enable new ways of working in enterprises

- Easy access to business process info
- Dedicated “vertical apps”
- Based on Android to close the gap with smartphone capabilities



Summary and Conclusions

- Enterprise market is different from consumer market
- Added value in bespoke features
- Compatibility with installed base is crucial
- CAT-iq features were designed for consumer market. Many of these are not relevant or not necessary for enterprise market
- NEC view on CAT-iq: Great opportunity that we want to embrace, to complement our portfolio



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NEC