iPECS is an Ericsson-LG Brand

ERICSSON | LG

UCM 2.0 Introduction

(iPECS-UCM-TRA-01-028)

15 Dec, 2017

Ericsson-LG Enterprise

iPECS
Your Communications Solution

REVISION HISTORY

ISSUE	DATE	DESCRIPTION OF CHANGES
0.6	27-Oct-17	Update for UCM 2.0 from UCM 1.0 (iPECS-UCM-TRA-01-004)
1.0	27-Oct-17	Update for UCM 2.0 before training
1.1	24-Nov-17	Update for UCM 2.0 after training
1.2	15-Dec-17	Errata

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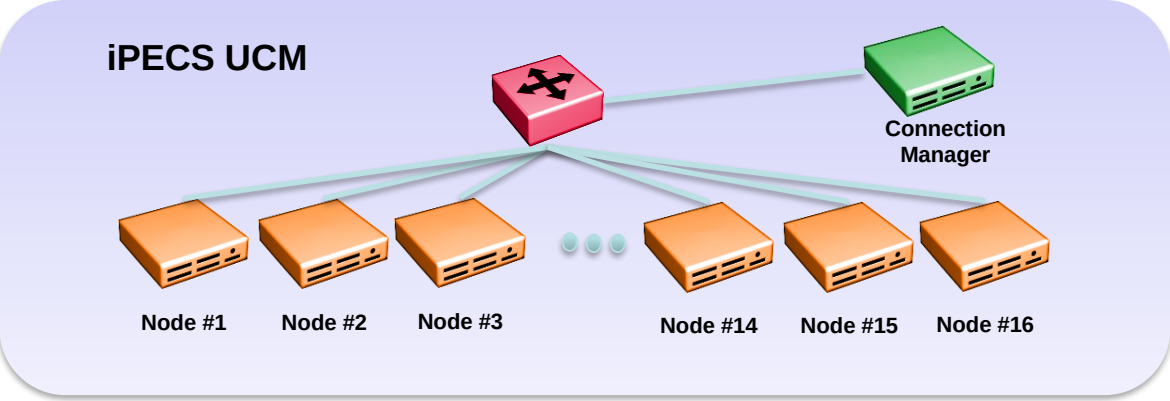
Overview

Distributed DB architecture

Capacity up to 960K users (16 nodes)

Active-Active failover

Cloud ready (Virtualization)



Reliable & secure

Scalable & flexible

Versatile multi-call/messaging control

APIs for 3rd party interworking

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Value

✓ Scalable and Centralized system with various iPECS platforms

2K/4K/10K/30K/60K/120K/240K/480K/960K Call Manager, 8192 Local Survival Site working as a Single PBX
Re-use of existing LIK MFIM and Gateway Modules
Common applications with LIK or MG

✓ Reliability & Security

Active-Active Failover, Encryption, Database security , ACL , SIP Registration Management

✓ Rich Application

iPECS UCE, CCS, IPCR, PMS, Attendant, NMS, VQM, CSM, SBC, Voice Mail, ClickCall, and Microsoft Lync are optimized.

✓ New Gateways

New MGC3 and Gateway modules

✓ Improved API

SAPP(IM), CSTA(XML), SNMP V3, LDAP(Active Directory), CM API(DB SYNC, Click call, Call back, Set DND, Set Forward, SMS)

✓ Virtualization

Cloud ready

✓ Easy to Use & Monitoring

Web management(Over IE10, Chrome, Firefox) based on HTML
SNMP based Network Management System

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Major Feature

- ✓ Wide range of IP telephony features
- ✓ Audio conference features with 2000 conference rooms with up to 128 parties
- ✓ Built-in auto-attendant and voice mail with email notification
- ✓ Mobile extension
- ✓ Hot desking for sharing a single desktop phone with multiple users
- ✓ Automatic QoS through LLDP and LLDP-MED for IP Phones
- ✓ Multiple phone numbers for one SIP Phone, up to 30 numbers
- ✓ Broadcasting and interphone for 100 party/group
- ✓ Push-to-Talk (PTT) for 128 party/group & 10 group/tenant
- ✓ Spam call protecting features for specific phone number
- ✓ Virtual subscriber service, CID Conversion, and ARS digit conversions
- ✓ Multiple interfaces for integrating external VMS/IVR
- ✓ Multi-tenant support up to 65K tenant groups
- ✓ VQM Supported

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History

2015 → 2016 → 2017 → 2018

On premise

CM V10.0
ACT-ACT
Capacity Expansion

→ **UCM 1.0**
eMG80 LCM , VQM, AD
NMS, SBC, VM
New MGC & GW, Opus codec

→ **UCM 2.0**
VQM (LIP, ASLM, DSLM)
NMS(VQM, Statistics),
CM API, Node feature

→ **UCM 2.5** (TBD)
IPV6 (SIP), Open API
(REST HTTP), SIP ACD,
Soft VPCM

960K / 65K Tenant
ACT-ACT

Cloud

Cloud V2.0
EMS, CC, Lync RCCV
Billing gateway

→ **Cloud V2.1/2.2**
UCE
VSP feature
3rd party device

→ **Cloud V2.3/2.4**
WCS
Recording Encryption
DB Backup

→ **Cloud V3.0**
High Scalability, Geo Redundancy
New Contact Center, S/W VPCM
Openstack KVM hypervisor

30K / 250 Tenant
VM ware / ACT-STB

65K Tenant
Open Stack / Soft VPCM

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Major Change

Comparison P5.5 vs UCM

Category	iPECS-CM P5.5	iPECS-UCM
Server Configuration	Center CM Local survival CM : 250	CAM CCM : MAX 16 LCM : 1024/CCM, 8192/System
✓ Capacity	30K Subscriber/System 250 Tenant/System	60K Subscriber/ Node 960K Subscriber/ System (Max 16 Node) 65K Tenant/ System
✓ HW	MGC2	MGC2 MGC3 (11 Slot, MDTM-X2 :2 link, Opus)
✓ Performance(BHCC)	450,000 BHCC/System	720,000 BHCC/Node (200 CPS/Node)
✓ Server Redundancy	ACT-STB	ACT-ACT or ACT-STB
DBMS	Proprietary Relation DBMS	SQL Relation DBMS (Firebird)
SIP User	UDP 30,000/System TLS 20,000/System SIP Session 10,000/System	UDP 60,000/Node TLS 40,000/Node SIP Session 20,000/Node
Web Brower	ActiveX Support Browser - Under IE9	HTML5 Support Browser - Over IE10, Chrom, Firefox

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Features

UCM 1.0

items	Feature
New Terminal	• LIP-9050(SIP) /9071(IPKTS&SIP), w/BT • LIP-9XXX series , w/BT(BTMU) • LDP-92XX, w/EHSA • LDP-9130 , w/EHSA
VQM	• SIP 9010/20/30/40/40C/UCE • LIP 9XXX, TDM GW (U-DSLM, U-ASLM), Summit TDM GW (UCM 1.1 ~)
eMG80 LCM	• CM control eMG GW & Phone when by-pass mode • Need License for each eMG80 Board
AD Sync	• Bulk User Creation • User Update (Periodic / Manual by Administrator) • User Add / Delete / Change
Data Security	• ARIA (ARIA_CBC_PAD) SIP/Provisioning/SSH/CMAPI/SNMP/Active Directory password ….. • SHA256
3'rd party API	• Restful API • CM API (DBSYNC) : System configuration, DN, Trunk, Group ….. • CM API (Admin) : DN query, Change DN Name & CID, SIP id & pwd

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Features

UCM 1.0

items	Feature
Provisioning	• Auto Registration • Provisioning Authentication (MAC, ID/PW) • Provisioning File management • Supported Terminal IP8800e/8002 , LIP-90XX , LIP-9050/70/71 (Android Terminal)
Virtual GW Channel expansion	• VIPM, SIPEM, H323M, SIPTM • Variable channel : 0 ~ 8192 • Mass Data generation supported
Overall Version Information	• Version Information
DB Management	• Download DBMS in WMS • Recover DBMS by WMS
Remote TCP dump Capturing	• Enable tcpdump packet capture configuration • Control tcpdump • Download file
Remote Telnet logging	• Enable telnet logging (trace option) • Control telnet logging (stop / start / download)

Your Communications Solution

Features

UCM 1.0

Items	Feature
eNMS	• Easy Installation • SNMP V3 • HTML5 Support Browser (Over IE10, Chrom, Firefox) • Improved User Interface • Flexible options to mange event plan and log
E-SBC	• Security (Toll Fraud/ Malformed packet protection / ACL / TLS / sRTP) • Call Routing / policy Management • Capacity : 12K concurrent SIP Session • Local and Geographic Redundancy
UCE P3	• UCM 1.0 Integration (Act-Act SIP Failover) • 60K subscriber • VQM • Windows PC, Android/iOS Mobile, iPod Touch • PUSH Service • MS Outlook Contact / Mondago CRM M/W Integration
E-VMS	• ACT/STB redundancy • Multi-tenant, management by tenant • 450 concurrent call • Supported Codec : g711u, g711a, g729a • Group mailbox, Greeting, Play back, E-mail notification

Features

UCM 1.0

items
Multicast Command call
SIP Mac authentication
Conference Recording
No VPCM channel for SIP trunk (optional)
IPCR redundancy
Billing – Added information (Ring time / Name / Group Name)
UM AVST Integration
Voice Mail
Chinese language support (9071)

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Features

UCM 1.1

items	Feature
VQM	• LIP-9010/20/30/40/40C • TDM GW (U-DSLM, U-ASLM) • Summit TMD GW (VOIB48, VVMU)
MDTM-X2	• Add new signaling type (E1/R2/SS7) • UCM 1.0 supports only PRI
Certification	• Public Certification upload/download • Private Certification creation
Provisioning	• Transfer mode of flexible button of LIP-9XXX
VQM application	• Real-time voice quality monitoring • Summary information • Detail information • Daily email report

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Features

UCM 2.0

items	Feature
New Terminal	• LIP-9008(IPKTS) / LIP-9008G(IPKTS) • LIP-9040C(IPKTS)
ACT/ACT failover	• Chain mode fail-over • Manual fail-over • Manual fail-back
Node call features	• Busy service (call-back, camp-on, call-wait, intrusion, voice-over, pilot-hunt) • Intercom (forced hands-free)
Node call fail-over	• Routing to trunk G/W(MDTM) in case IP network down
Call-id of SMDA	• Call-id is added for call tracking
AD sync	• AD sync (name, phone number, position, department, email) • Open API to retrieve and lookup data
Alarm/Fault/Status report	• Add report options of each events (WMS, NMS, eMail)

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Capacity

System

Protocol	ACT/STB	ACT/ACT (w/ Max 16 nodes)
System Port	60,000 / system	60,000 / node
		960,000 / system
Extension	60,000 / system	60,000 / node
		960,000 / system
Trunk	60,000 / system	60,000 / node
		960,000 / system
BHCC	720,000 / node, 200 cps	
Media Gateway	65,000 slots / system	
LCM	1,024 / node, 8192 / system	
Tenant	65,000 / system	
System Speed Code	9,999 / tenant	
Conference Room	2,000 / tenant	

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Capacity

ACT-ACT Failover

Protocol			ACT/STB	ACT/ACT		
				Node1	Node2	Failover
SIP	SIP User (Register)	UDP/TCP	60,000	30,000	30,000	60,000
		TLS	40,000	20,000	20,000	40,000
	SIP Session	-	20,000	20,000	20,000	20,000
IPKTS			60,000	60,000	60,000	120,000

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Applications & Terminals

Enhanced applications and terminals

Clients

LIP-8000E

LIP-9000

LIP-9050/71

LDP-9000

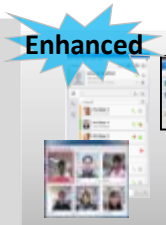
LDP-9200

WIT-400HE
WiFi

GDC-800H
IP-DECT

IP-ATD

UC and Applications



UCE 3.0

Clickcall

CCS

Report+

IPCR

NMS

VMS

AD(LDAP)

eVQM/eCSM

Comm. Platforms (Pure IP)

SBG-1000

eMG800

UCP

iPECS-CM
S1K/S2K/S4K/S10K/S30K/60K/120K/240K/480K/960K

iPECS-UCM

IP enabled & Switches

W-SOHO

ipLDK-60

eMG80

iPECS-MG100/300

iPECS-MG100/300

ES-2000

ES-3000

ES-4500

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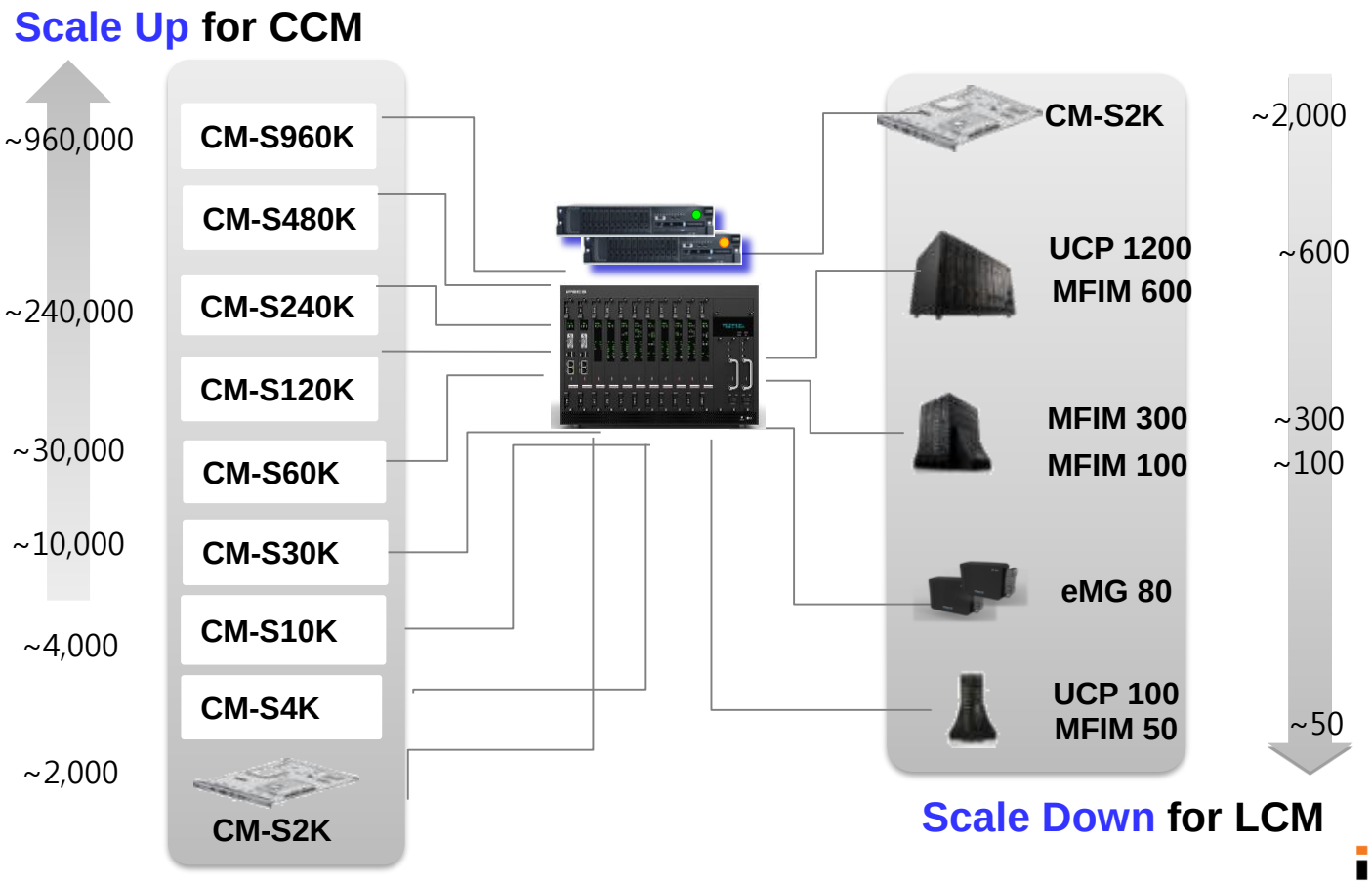
Scalability

- From small office to large enterprise environment available
- Scale up to 960K users with 8192 Local Survival Branches:
  65K tenants support for large business building
- Scale down with MFIM/UCP: Compatible with MFIM 50, eMG80 ~MFIM1200, UCP100,600



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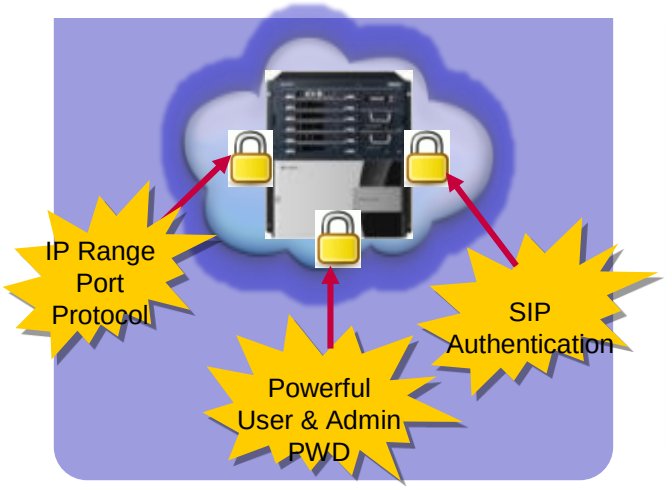
Security

Secured IP Communications

iPECS UCM is a proven secured communication solution with encryption, enhancing authentication and access security.

Security management on Call Server

- System access control using Access Control
- Subscriber authentication

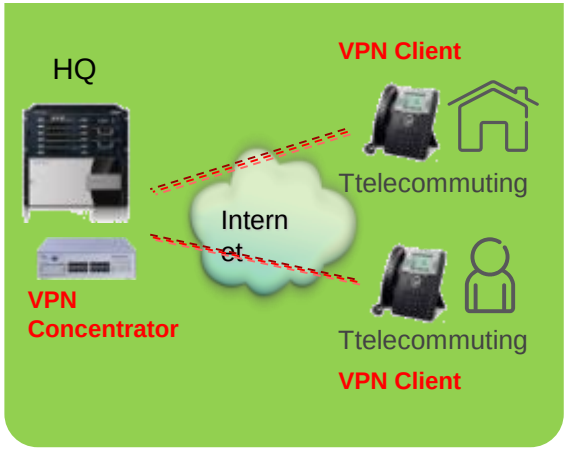


Encryption between IP-PBX and IP Phone

- Protocol: TLS, sRTP
- Algorithm: AES (Global standard), ARIA (Korea Governmental standard)
- Key: ECC, RSA

IP Phone VPN & 802.1x

- IP Phone VPN client: Cost reduction and secure communication
- 802.1x for enhanced access control: port based network access control



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Easy Local / Remote management

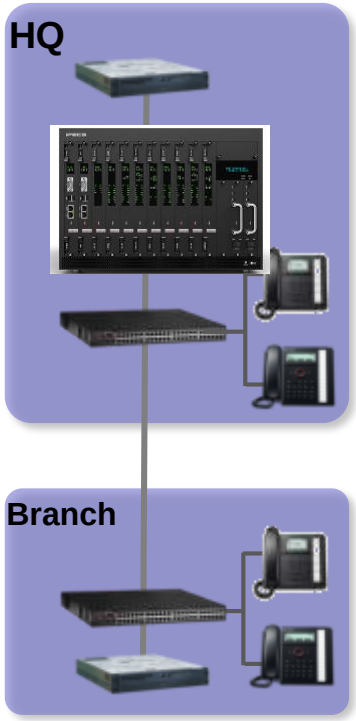
- Web management(Over IE10, Chrome, Firefox) based on HTML
- SNMP based Network Management System

WMS *(Web Management system)*

- Web based IP Telephony management tool
- No additional devices required
- Manage station, trunk, system error and 3rd party equipment

NMS *(Network Management system)*

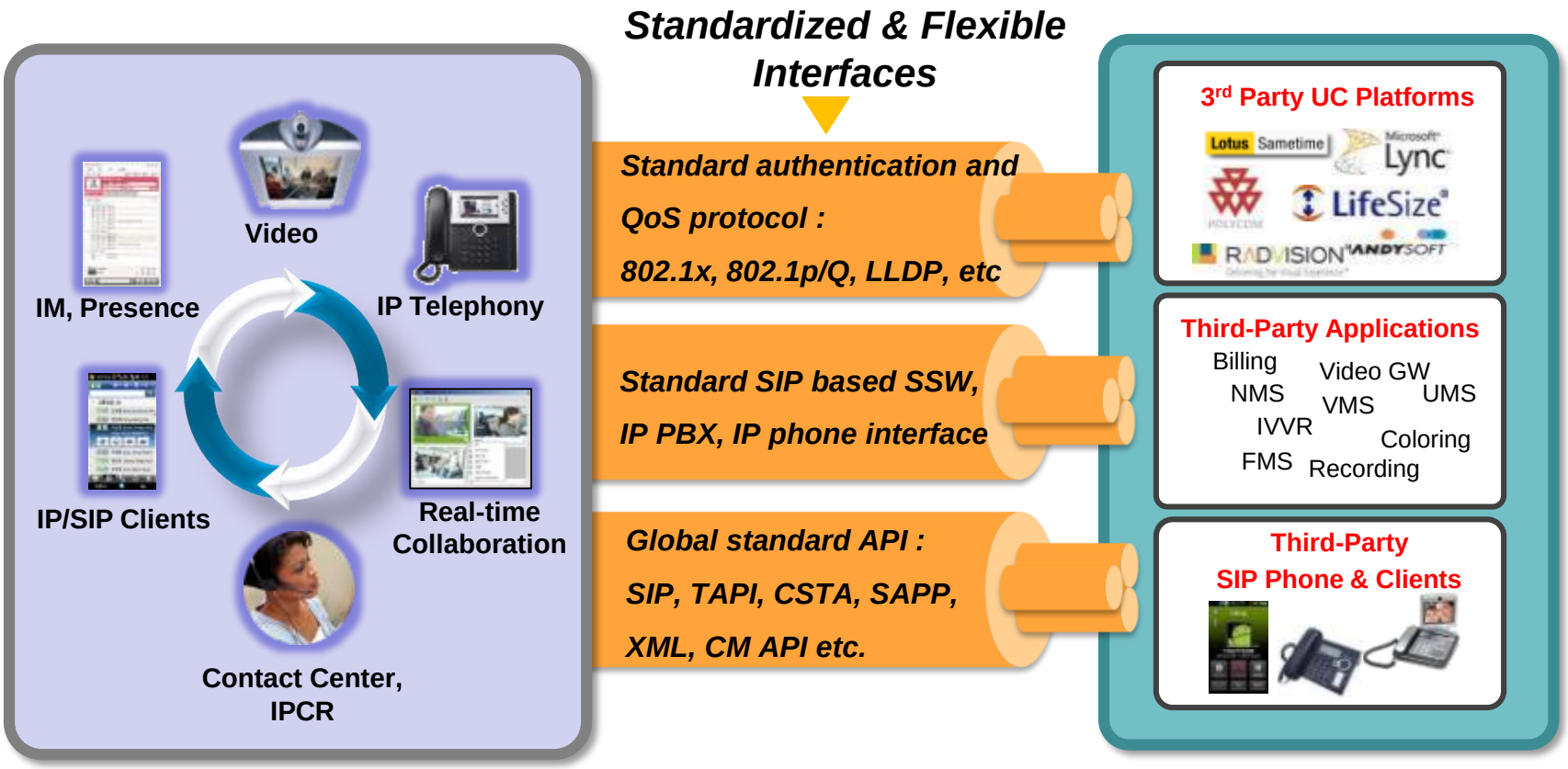
- SNMP V3 based IPT monitoring tool including server,
- gateway modules, phones and data switches
- Monitoring connected off-premises devices status monitoring
- Monitoring system error and problem and real time notification



iPECS Your Communications Solution

Various 3rd party Interfaces

With various standard protocols and 3rd party interfaces, flexible and customized configuration is available.



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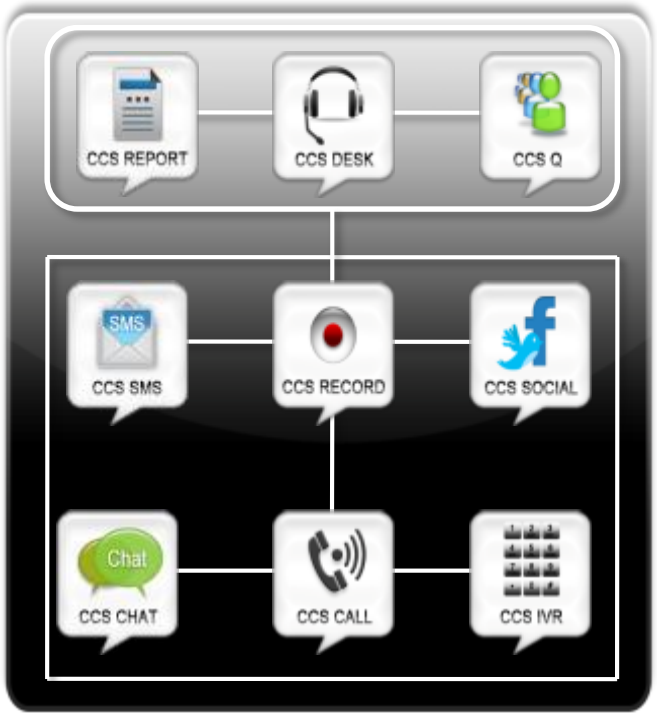
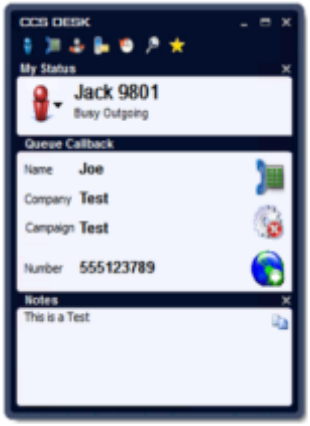
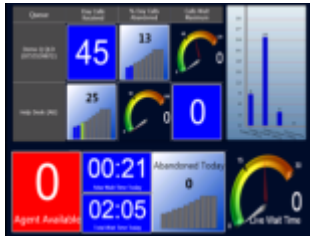
CCS

iPECS CCS is the comprehensive Contact Center Suite optimized for small and medium contact center. It is designed as the solution with all IP (i.e., VoIP), multimedia (Call, Fax, E-Mail, Web), social networking (Facebook, Twitter) and modular base to fit to the variable customer needs.







- Business Intelligence Reporting
- Skills Based Routing
- Real-Time Configurable Dashboards
- Unlimited queues
- Remote & Multi-Site Support
- CRM Integration
- Powerful Add-Ons
  - >Call-back in Q (Virtual Hold)
  - >Web Call-back
  - >Email, Voicemail & Fax queuing
  - >Voice Recording
  - >IVR
  - >Tele-Marketing (Outbound CC)
  - >Web Chat

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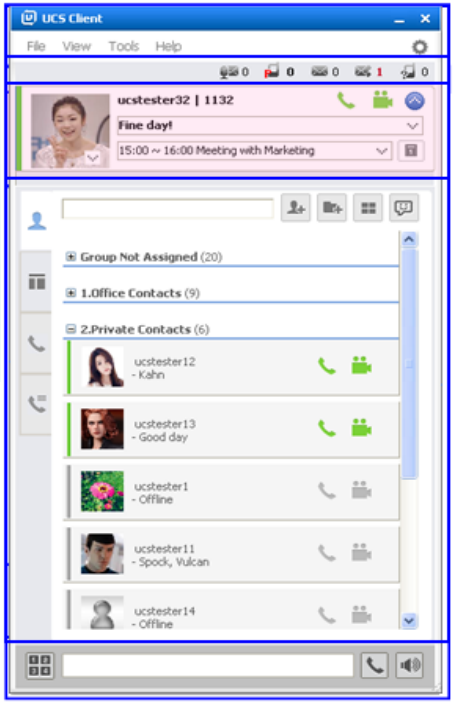
UCS

iPECS UCS which is the specialized Unified Communication Solution for Ericsson-LG Call Platforms(iPECS-LIK, iPECS-UCP, iPECS-MG) has been enhanced in order to be optimized for mobile office environments.

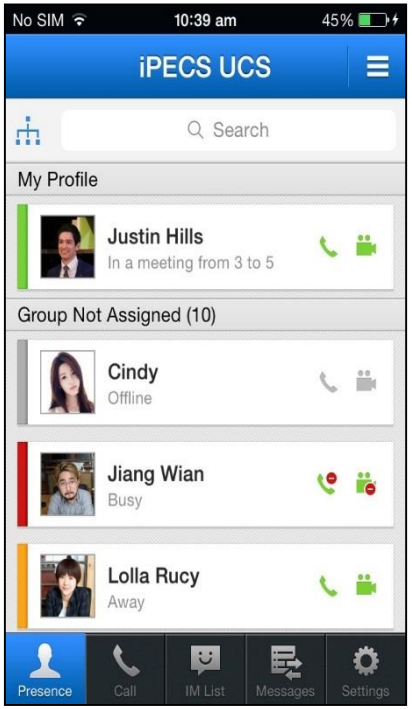
New Features

- Mac PC Client
- CRM
- ACD Log-in/out on Window client
- Mobile 3-way conf. w/o MCIM
- Mobile phone status for UCS call status
- System Geo redundancy

Not supported from UCM
UCE replaced UCS



PC Client



Mobile Client on Android

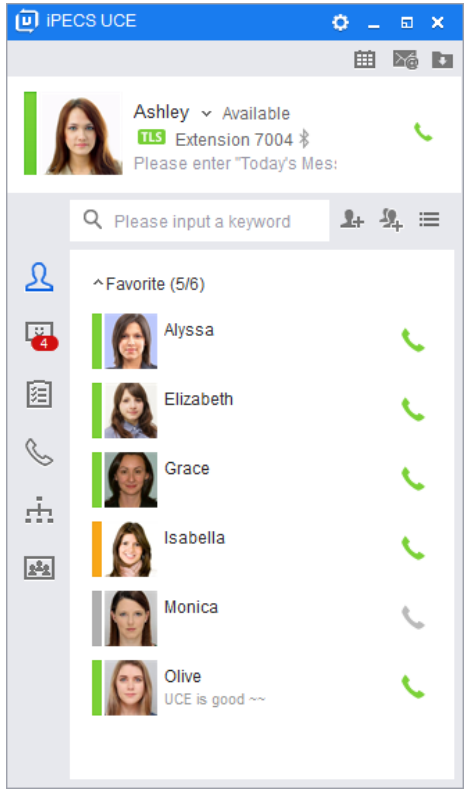
iPECS Your Communications Solution

UCE

iPECS UCE is an Unified Communication solution for enterprise customers consisting of a server platform and client software application providing presence-based instant messaging, voice & video call, audio conference on multiple OS – Windows, iOS, Android.

Major Features

- Smart Presence
- 1:1 Chat, Group chat
- File Transfer
- Call Move, Chat Move
- One number for multi-device
- One digit service
- Group call & Ad-hoc Conference
- TLS & SRTP Security
- Mobile HandOver
- LTE Only Mode
- Mobile Call-back
- Multi-Tenant
- Redundancy (ACT/STB)



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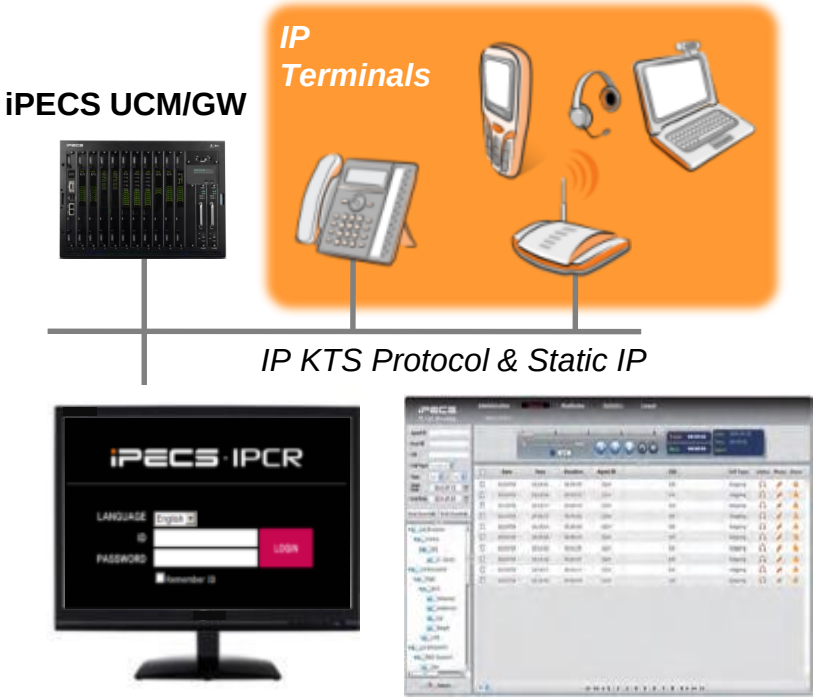
IPCR

iPECS IPCR is the IP Call Recording solution optimized for iPECS Call Platform and it can meet customer's unexpected needs.

Cost effective all call recording

- No additional circuit I/F board required
- No extra cabling required
- Centralized or distributed call recording
- Encryption enabled call recording
- All Terminal recording



Supervisor Call recording control

- Easily remove recording file when customer doesn't want to record
- Supervisor/Manager can stop agent All Call Recording

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Direct Fidelio PMS Interface for Hotel Package

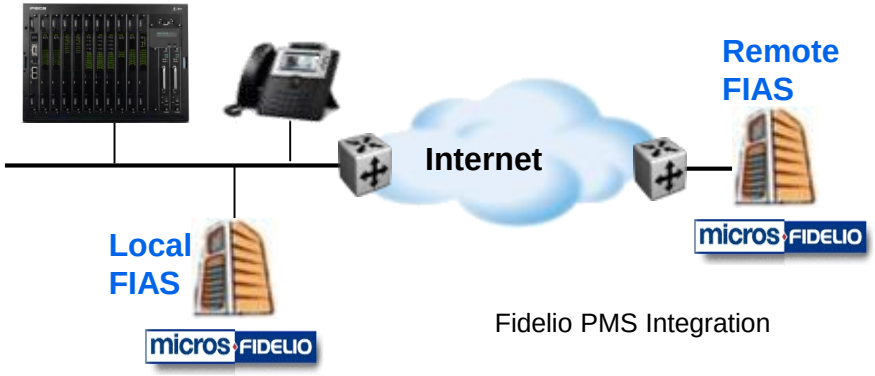
FIAS (Fidelio Interface and Application Protocol) is implemented to support direct interface with Fidelio PMS which is one of the most popular for large-sized hotels as well as global-chain-hotels such as Intercontinental hotel and Sheraton hotel.

Supported Features

>Check in / check out notification
>Room move
>Guest information support for name and language
>Class of service handling (bar / unbar an extension)
>Room status
>Voice mail notification from iPECS
>Message lamp handling
>Do not disturb handling
>Simple posting of phone charges based on total amount
>Minibar charge by total and by article number
>Wake up calls handling

Compatible MICROS-Fidelio PMS versions

>Suite8 PMS version 8.6.x onwards
>OPERA Suite PMS version 4.0.04.x onwards
>OPERA Suite PMS version 5.0.x



Fidelio PMS Integration

Front Desk Station

00 : GUEST NAME
01 : GUEST GRADE
02 : CHECK-OUT DATE
03 : LCD LANGUAGE
04 : HOTEL ROOM CUT-OFF
05 : DND
06 : WAKE UP TIME
07 : TOLL CLASS
08 : TRANS CLASS
09 : PMS GROUP
10 : MSG WAIT NO
11 : MSG SENDER

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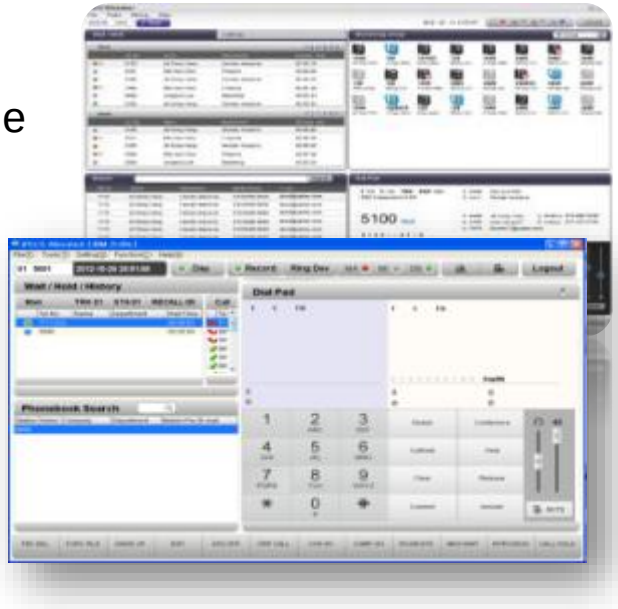
iPECS Attendant

Enhanced IP Attendant

iPECS Attendant is a software application designed to enhance the attendant feature by visualizing the attendant call handling and control functions. All the existing features of PC Attendant & Digital Attendant Console are migrated to the iPECS Attendant with several enhancements.

Embedded soft phone functions

- Utilizing various call features of iPECS-CM via IP soft phone
- High quality voice communication using a PC
- Flexible call handling and operating
- Value added service such as video call, call recording



Easy to use interface

- New graphic user interface for easier and more intuitive design and display
- Flexible display layout

Hospitality features

- New Check-in/out, wake up call, Group registration, room status, room cut off etc.

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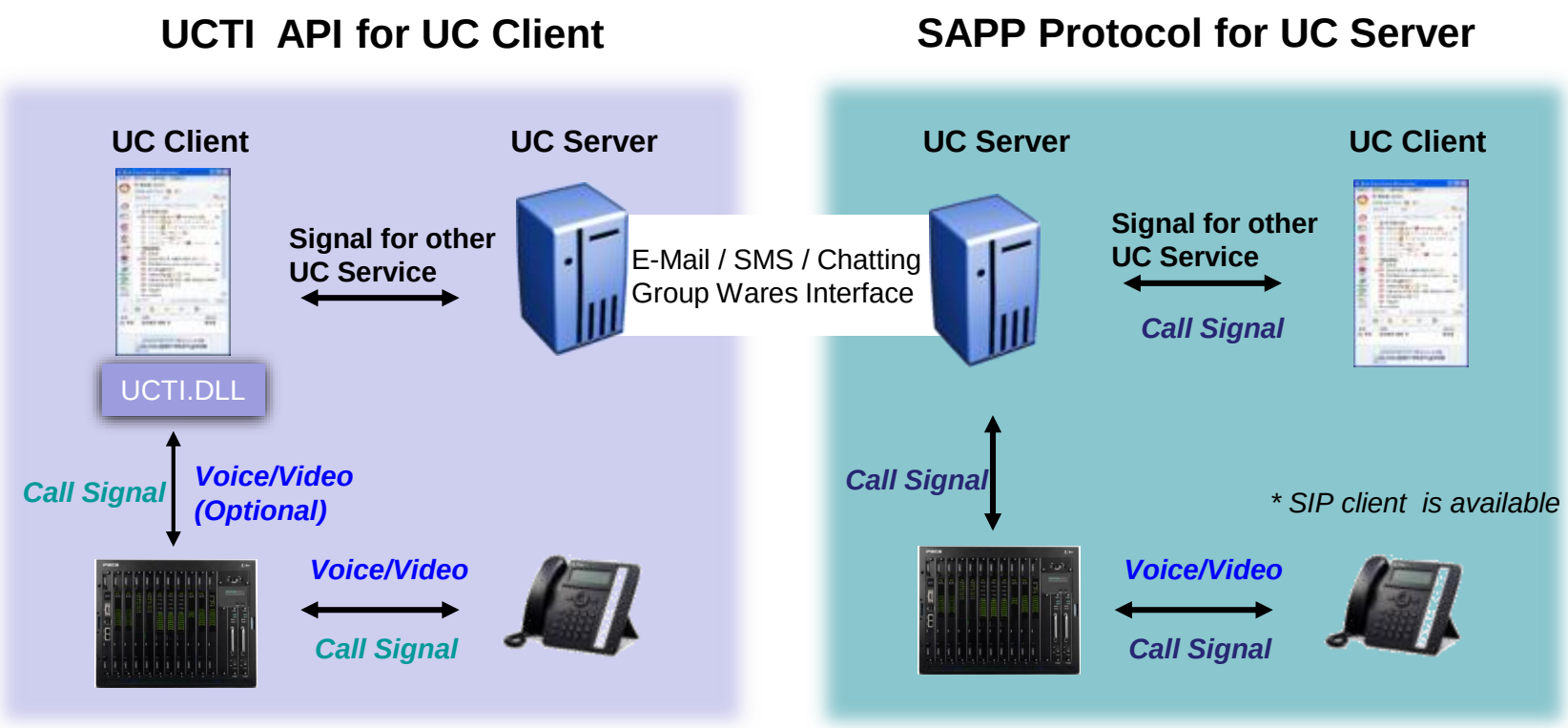
UCTI & SAPP for customized UC

In addition to iPECS UCS as an Ericsson-LG own UC solution, iPECS-CM is offering two types of open interfaces for 3rd party UC solutions to meet the customized Unified Communication service.



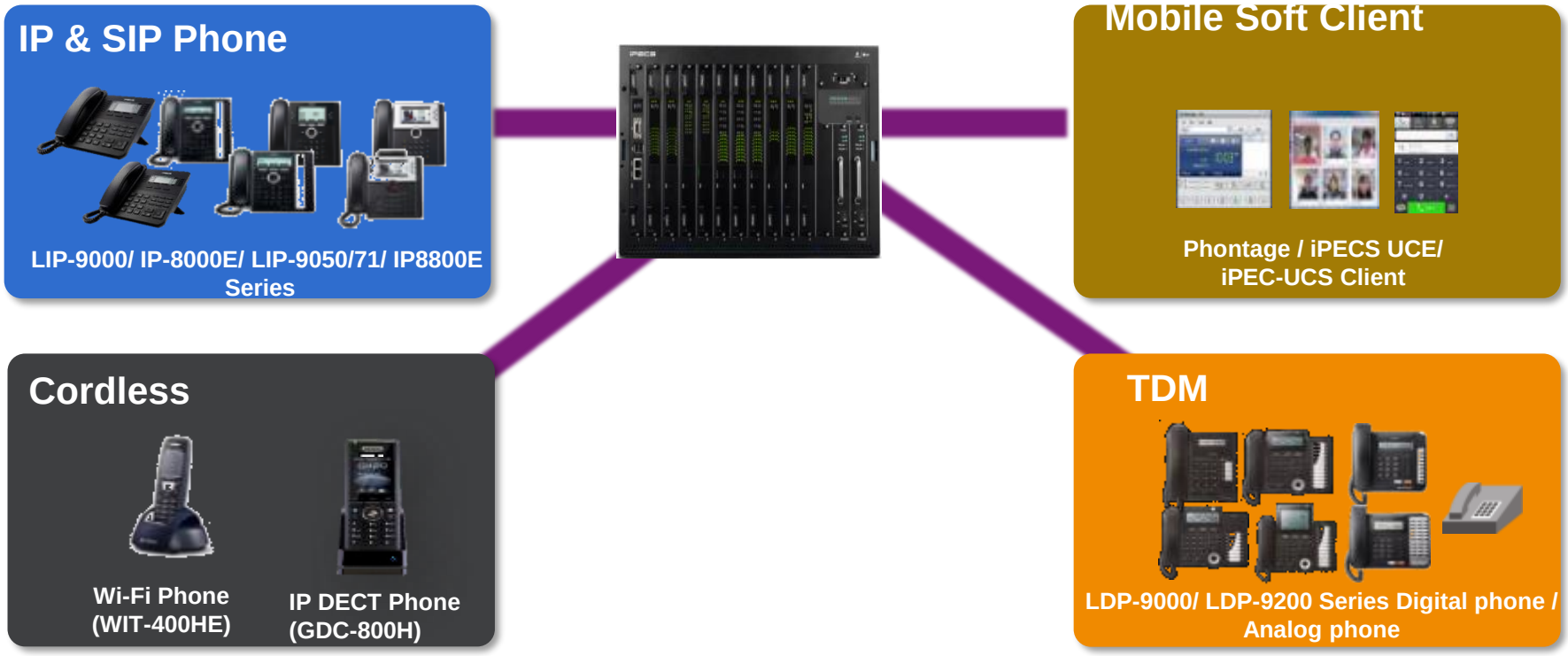
** SAPP (SOAP based Application Programming Protocol)*

iPECS Your Communications Solution

Various Terminal

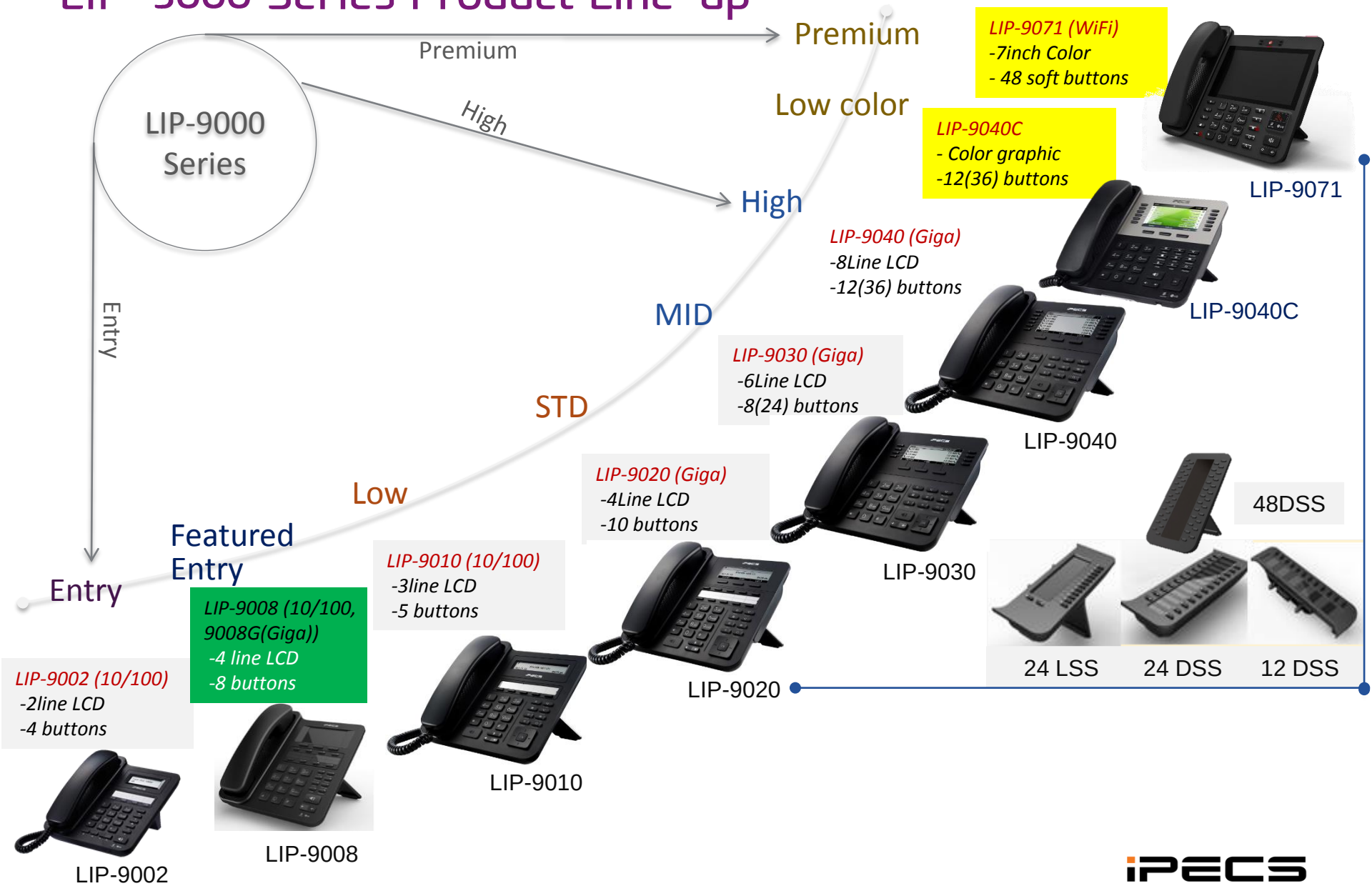
iPECS UCM supports various terminals from entry level to video phone

- IP/SIP desktop phones and soft phones via IP network
- Digital keyset and analog SLT
- Mobility with IP DECT, Wi-Fi phone and Mobile Soft Clients



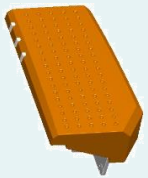
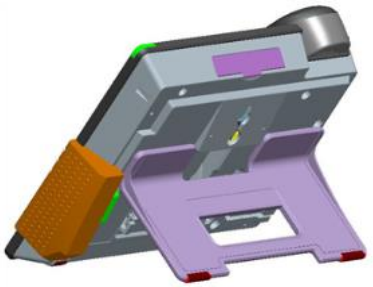
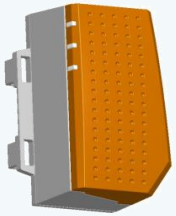
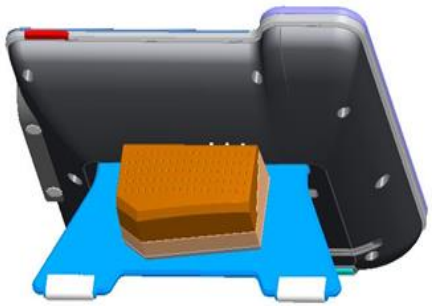
iPECS Your Communications Solution

LIP-9000 Series Product Line-up



iPECS Your Communications Solution

E-BTMU and LIP-9000BTMU

	Model	Using Scene
LIP-8000E BT Module	E-BTMU 	LIP-8000E 
LIP-9000 BT Module	LIP-9000BTMU 	LIP-9000 

iPECS Your Communications Solution

WIT-400HE Wi-Fi Phone(IPKTS)

WIT-400HE offers the latest technology combined with modern design, allowing you to connect to the Ericsson-LG systems over Wireless Network.

Target users

This stylish handset combines ease of use and lightweight design with enhanced durability for mobile workers within the workplace.

Key benefits

Enhanced voice communication

- Support most of system call features including 3-way conference, system hold, call back and linked pair
- G.722 wide-band codec support for better voice

Mobility enhancement

- Rich features in mobile environment
- Seamless handover between cells during talk

Easier communication with additional features

- PTT for group announcing, SMS, media volume control

Specifications

- 2” color LCD(176 X 220) with 2 line text that displays various information from system
- 802.11 b/g Network support, 802.11e for WLAN QoS

iPECS Your Communications Solution

IP DECT GDC-800H

- Standard SIP based IP DECT for cost effective mobility and easy maintenance as well as enhanced features
- Key features and benefits
  - Adopting high-tech IP DECT solution
    - All SIP based functions
    - SUOTA (SW Upgrade Over-the-Air) feature
    - All clock sync is handled by the Air
  - Cost effective multi-site mobility solution
    - Multiple locations become integral parts of centralized voice communication infrastructure.
    - IP DECT at remote locations does not need additional remote gateway module
    - Available for hosted service
  - Easy Installation & Management
    - Centralized Web management tool
    - Simplified installation and operation
  - Simple to expand coverage using repeaters
    - Up to 6 repeaters per base and 3 per daisy chain
    - Up to 300m in the open area or 50m in buildings

GDC-800H

GDC-800Bi

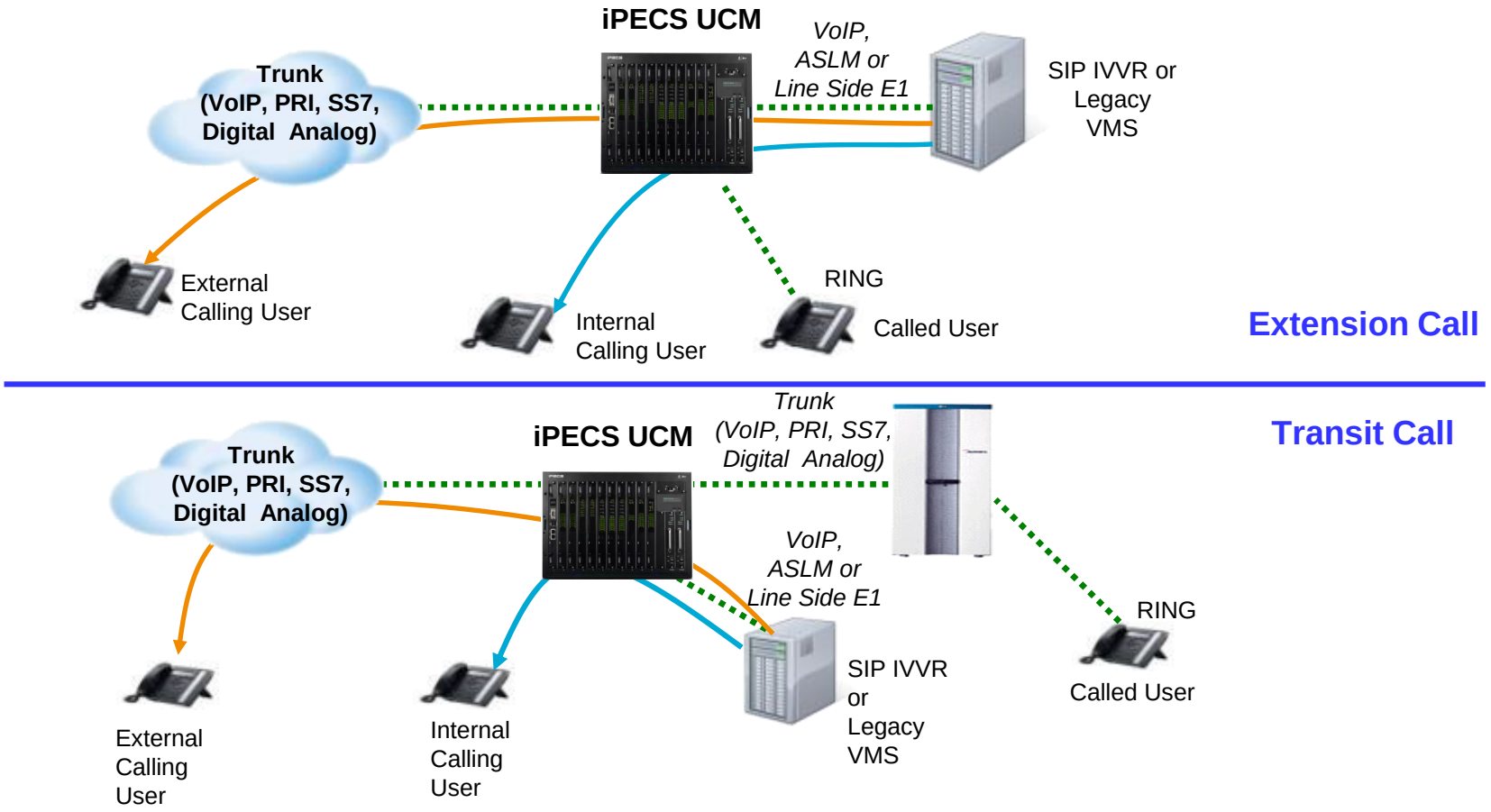
GDC-800R

Category	H/W	Description(One Zone)
System IP DECT (SIP)	Handset GDC-800H	Color TFT, Wideband
		Good RF characteristics, Good Voice quality
	Base GDC-800Bi	Up to 40 bases, 200 handsets
		Concurrent call : 8ch
	Repeater GDC-800R	Min. 2ch (Wide) / 5Ch (Narrow)

iPECS Your Communications Solution

Individual Ring Back Tone Service

Instead of RBT, special announcement or music specified for each called party can be provided to calling party.

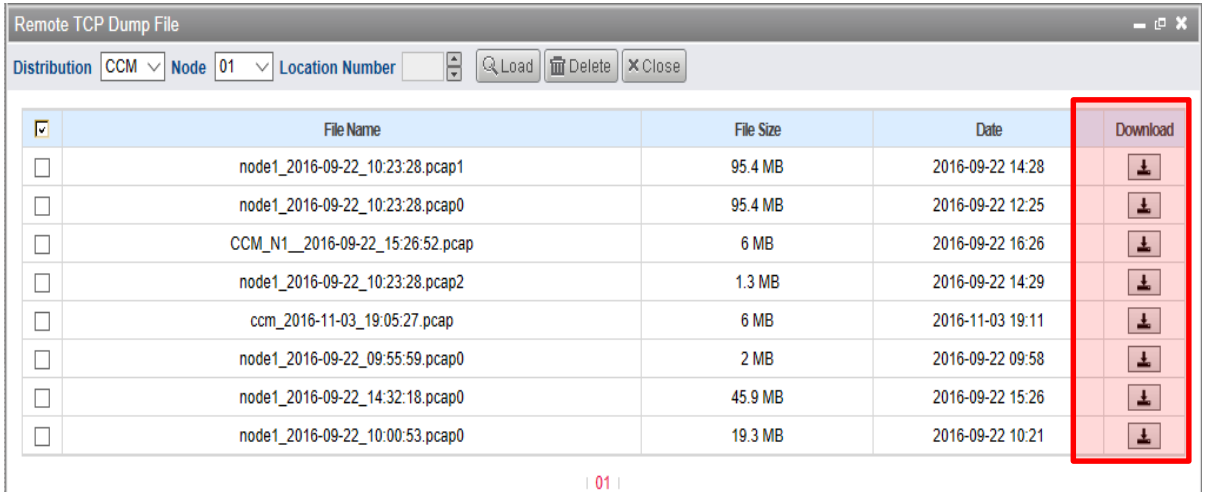


iPECS Your Communications Solution

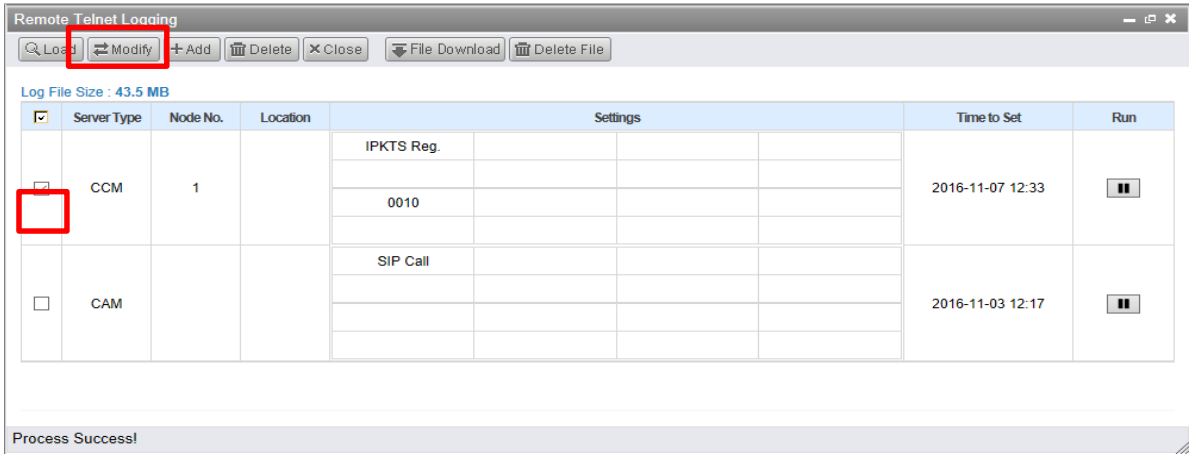
Remote logging

iPECS UCM support remote logging and tcpdump packet capture in WMS.

- Enable Tcpdump packet capture
- Download and Save
- Delete



- Enable the telnet log mask
- Download and Save
- Delete



iPECS Your Communications Solution

Network Management Solution for iPECS UCM

eNMS is a powerful tool for managing a fault information, monitoring real time status, maintaining call statistics and databases of multiple appliances.

SNMP v3 based unified monitoring

- Customizes Dash Board
- Call server and gateway module monitoring
- Terminal & Trunk data management
  - > DB sync. with iPECS UCM
  - > Retrieve terminal, Trunk status, IP address and etc.
- Data switch status monitoring

Error monitoring and real time notification

- SMS/E-mail notification
- Management of trouble history

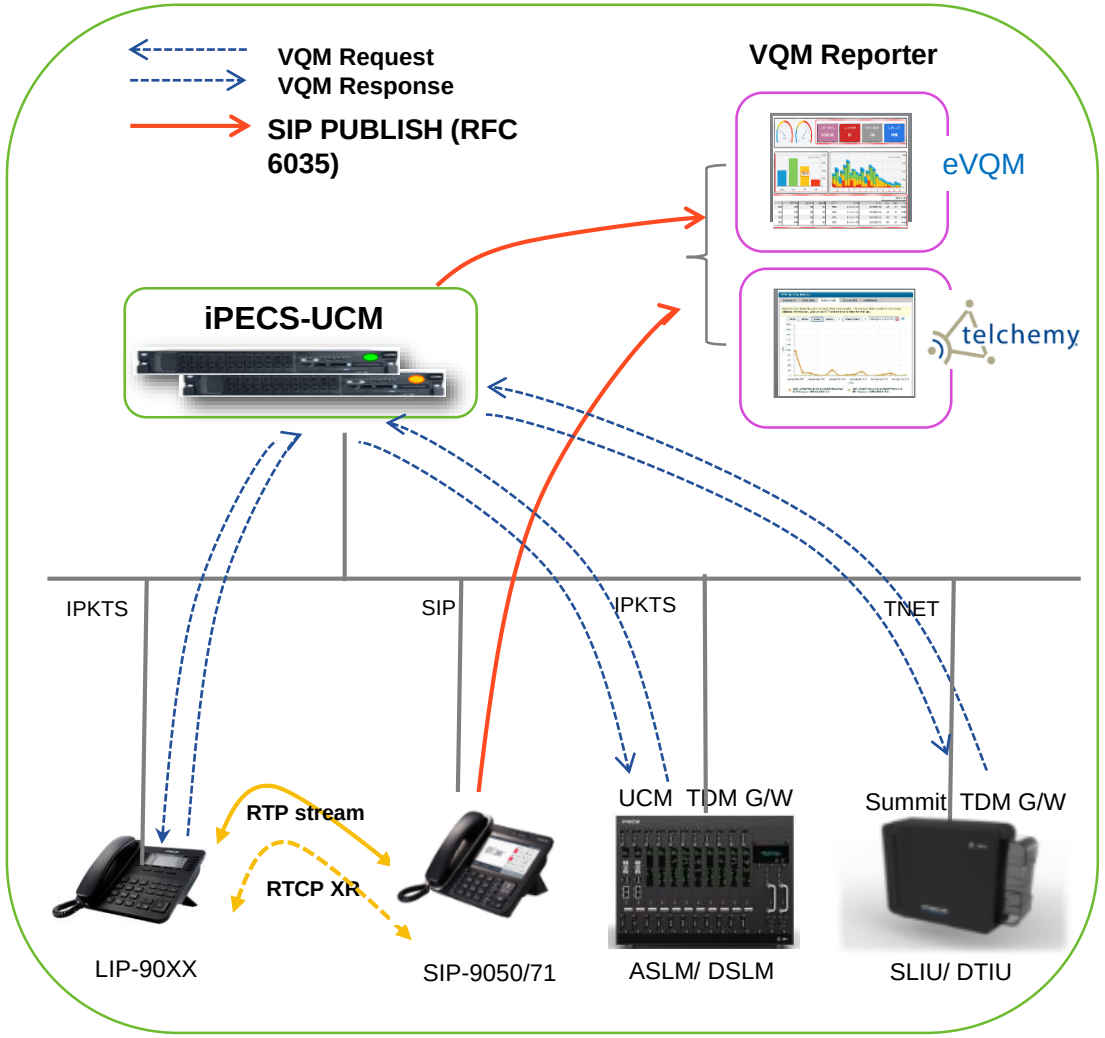
iPECS
Your Communications Solution

VQM (Voice Quality Management)

UCM 1.1 or higher

UCM reports real-time voice quality data to VQM server. iPECS eVQM supports real-time dash board and summary information.

- **VQM Devices**
  - SIP 90XX series (9010/20/30/40/40C/50/71)
  - IPKTS 90XX Series (9010/20/30/40/40C)
  - UCM TDM GW (ASLM/DSLM)
  - Summit eMG80 TDM (SLIU, DTIU)



iPECS Your Communications Solution

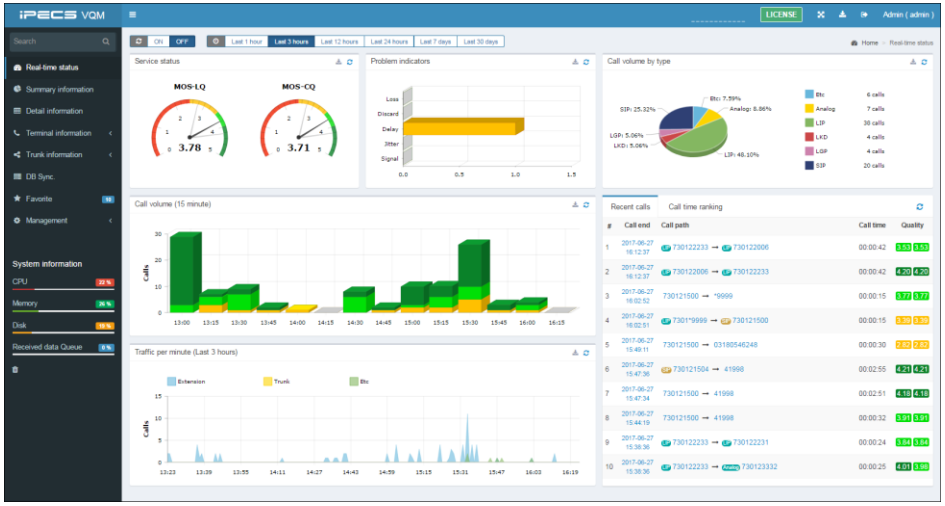
iPECS eVQM (Voice Quality Manager)

UCM 1.1 or higher

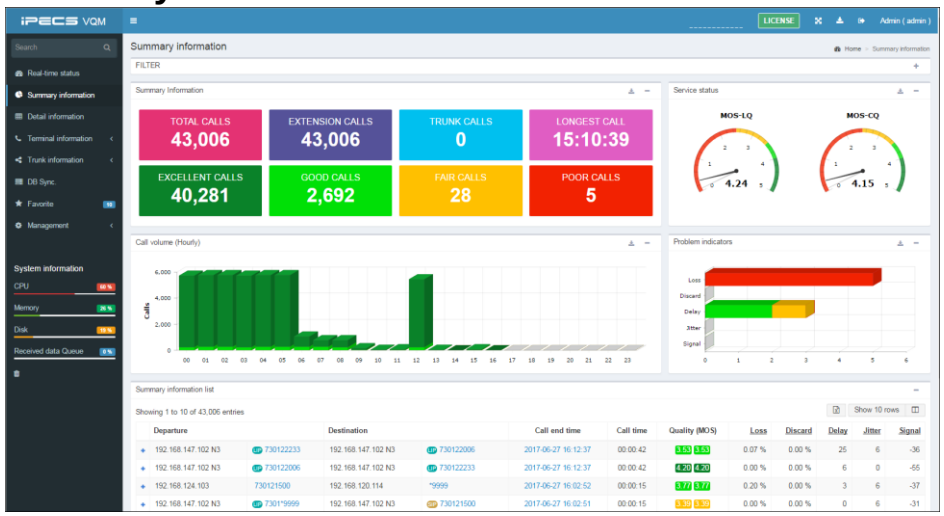
- **eVQM Features**
  - Real time Dash Board
  - Summary Information
  - Detail Information
    (MOS, Jitter, loss, delay, level)
  - Report file format
    (CSV file save, PDF download)
  - Daily email report

- **VQM Information**
  - MOS Info
  - Voice Delay
  - Packet Loss
  - Jitter
  - Signal Noise, Level
  - RTP Connection Info

Dash Board



Summary



iPECS
Your Communications Solution

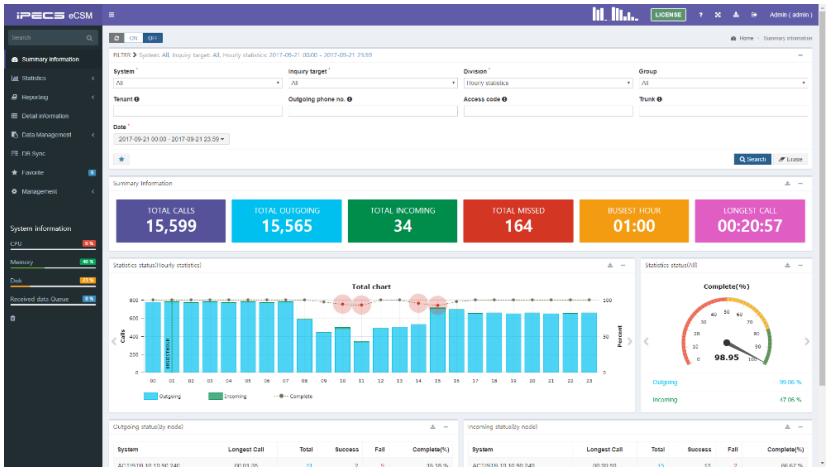
iPECS eCSM (Call Statistics Manager)

UCM 2.0 or higher

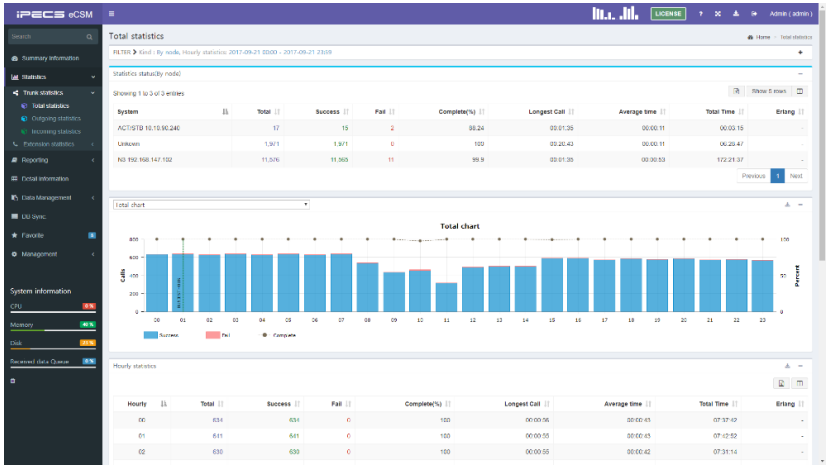
iPECS eCSM collects SMDA from UCM and report statistics of extension and trunk call.

- **eCSM Features**
  - Summary Information
  - Detail Information
  - Statistics (Trunk, Terminal)
  - Reporting (Top5, Daily, Weekly, Monthly, Yearly)
  - Daily reporting by email

Summary



Statistics



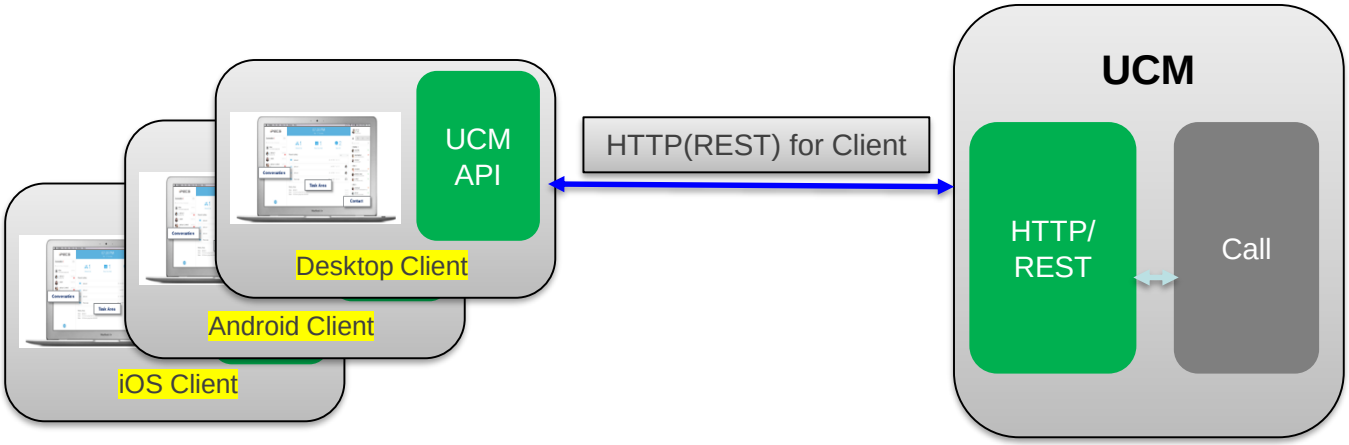
iPECS Your Communications Solution

UCM Open Interface

UCM 2.0 or higher

System provides simple services via iPECS REST API.

- Supported service(v1)
  - CallBack (ClickCall)
  - DND
  - Call Forward
  - SMS(Tx only)
- Protocol : JSON
- *Authentication/Authorization: Token*



iPECS
Your Communications Solution

Call Sever & G/W Modules

Call Server

Trunk Gateway

Extension Gateway

Function Gateway

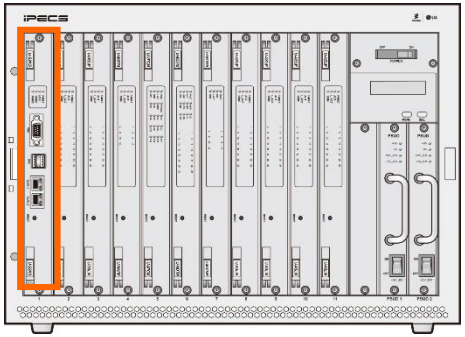
iPECS Your Communications Solution

Call Server (U-S2K)

- U-S2K is an embedded module type call server which can be installed into the media gateway cabinet efficiently.
- U-S2K and gateway modules which are mounted in MGC3 can be installed with simple network architecture.
- It can be used for CCM and LCM.
- BHCC : 54,000 (Max. 15 cps)

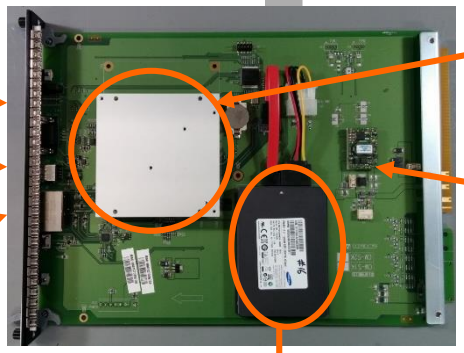
※ In the case where not used for Call Center or specific function causing an overload, U-S2K is allowed to be used for ~ 4,000 Users capacity.
(4K capacity license is required.
But, CCM/LCM SW should be installed as "S2K".)

MGC3



1URMC

UCM-S2K



Monitor Connector
(VGA)

USB Connector
(USB 2.0, 2 port)

LAN Connector
(10/100/1G Base-T 2 ports)

CPU Module
(COM Express
Compact R2.1, Type 2)

DC/DC Power

SSD
(SATA, 2.5", 128GB)

iPECS
Your Communications Solution

Call Server (Commercial Server)

- Minimum standards for Commercial Server Specification

User Capacity			960K ~ 120K	60K	30K	10K	4K	2K
CAM	CPU	Model	Intel Xeon® E5-2637 v2	Intel Xeon® E5-2690 v4				
		Core	8	8				
		Clock	3.50GHz	2.93GHz				
	RAM		8GB					
	HDD		1TB	300GB				
	NIC		G-bit Ethernet x 2					
CCM/LCM	CPU	Model	N/A	Intel Xeon® E5-2637 v2	Intel Xeon® E3-1220 v3	Intel Xeon® E5-2690 v4	Intel Xeon® E5-2609 v2	Intel Atom N2800
		Core		8	4	4	2	2
		Clock		3.5GHz	3.1GHz	2.93GHz	2.5GHz	1.86GHz
	RAM			8GB	8Gb	4GB	4GB	4GB
	HDD			300GB				
	NIC			G-bit Ethernet x 2				

iPECS Your Communications Solution

UCM Gateway Modules

U-MDTM2

Multifunction Digital Trunk Module
- 1 Link
- Supports E1/T1 digital trunk, 2048K/1544K bps ISDN PRI and CCS No.7 (selected by the switch in the board)
- “Line Impedance Matching Jumper” should be set to 120Ω for E1 or to 100Ω for T1.
- Channel capacity :
  - 2,048Kbps E1 Trunk / PRI European mode: 30B+1D Ch.
  - 1,544Kbps T1 Trunk / PRI American mode: 23B+1D Ch.

U-MDTMX2

Multifunction Digital Trunk Module, 2 Link
- 2 Link
- Supports E1/T1 digital trunk, 2048K/1544K bps ISDN PRI and CCS No.7 (selected by the switch in the board)
- Line Impedance is set automatically by line characteristics.
- Prerequisites : 2 Links should be synchronized by same network clock and have same line characteristics. (both E1 or both T1).

U-VPCM

Voice Prompt & Conference Gateway Module
- Supports Voice Prompt, Storage, Conference, Trans-coding, Security of RTP/RTCP (SRTP) and IP Relay of RTP/RTCP.
- Channel Capacity : Depends on Function and Codec.

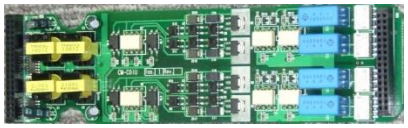
iPECS Your Communications Solution

UCM Gateway Modules

U-MATM

Multi-function Analog Trunk Gateway Module
- Supports CO/EM Analog Trunk Interface using option module
- Possible to install 4 option modules that can be mixed.
- Port Capacity (Max.) :
  CO: 16 ports, 2-wire EM: 16 ports, 4-wire EM: 8 ports

U-COIU



Central Office Interface Unit
- Port Capacity : 4 ports
- Provides the feature of Loop seizure, Ring detection, Polarity-reverse detection, Pulse dialing.

U-EMIU

Ear & Mouth Interface Unit
- Port Capacity : 2-wire EM - 4 ports, 4-wire EM - 2 ports
- 2-wire E&M (4 lines used) : Voice TIP, Voice RING, E, M
- 4-wire E&M (6 lines used) : Voice TX_TIP, Voice TX_RING, Voice RX_TIP, Voice RX_RING, E, M
- EM Type: Type V only supported (using two lines for supervisor signaling : E, M)

※ E line: Detect the off-hook condition of the other party. (supplying DC -48V)

※ M line: Open (On-hook state) or Ground (Off-hook state).

iPECS Your Communications Solution

UCM Gateway Modules

U-ASLM

Analog Subscriber Line Gateway Module

- SLT Line Interface : 32 ports
- Provides the features of -48V power feeding, CID (Call ID) signal transmission and DTMF signal detection for SLT.
- Supports “Message Waiting” function.
- Ring signal power: 5 REN (Ringer Equivalence Number)
- Maximum wiring distance : 8 Km (using AWG 22 ~ 24 or UPT 5 cable)

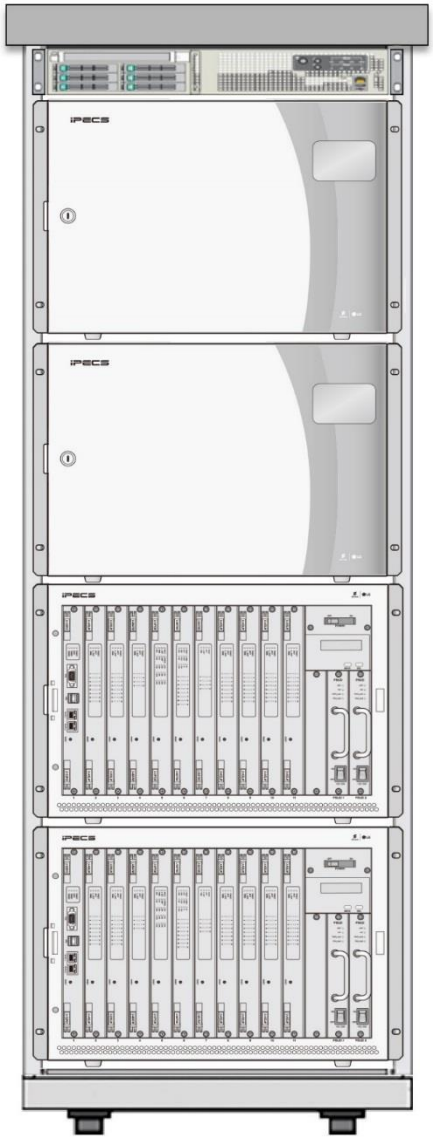
U-DSLM

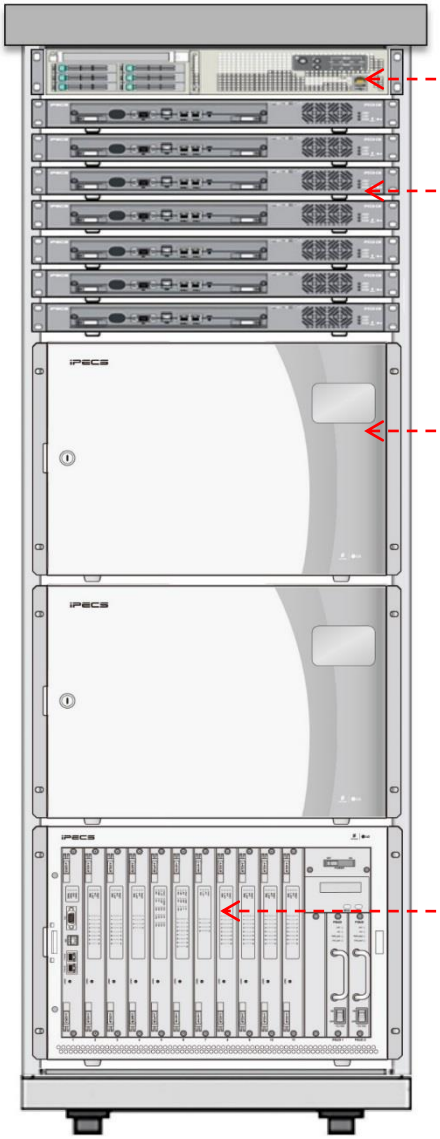
Digital Subscriber Line Gateway Module

- D-Tel Line Interface : 32 ports
- -48V power feeding
- Supports only for LDP-9130
- Maximum wiring distance : 1 Km (using AWG 22 ~ 24 or UPT 5 cable)

iPECS Your Communications Solution

19” Rack Mount Configuration





Communication Server

1URMC

MGC3

UCM GW modules

iPECS
Your Communications Solution

System Summary

- iPECS UCM (Unified Communication Manager) consists of Communication Manager software, a ELG dedicated server for the capacity 2000 users, a family of intelligent Gateway Modules and Cabinets to mount Gateway Modules, which are interconnected over IP/Ethernet LAN.

  - **Communication Manager:** Software to be installed in Communication Servers, which includes call features, application interfaces and OAM functions
    * CAM : Connection & Admin Manager
    * CCM : Central Communication Manager
    * LCM : Local Communication Manager

  - **Communication Server(HW):** Commercial server or ELG dedicated server.
    * U-S2K : ELG dedicated server for 2K Communication Manager.

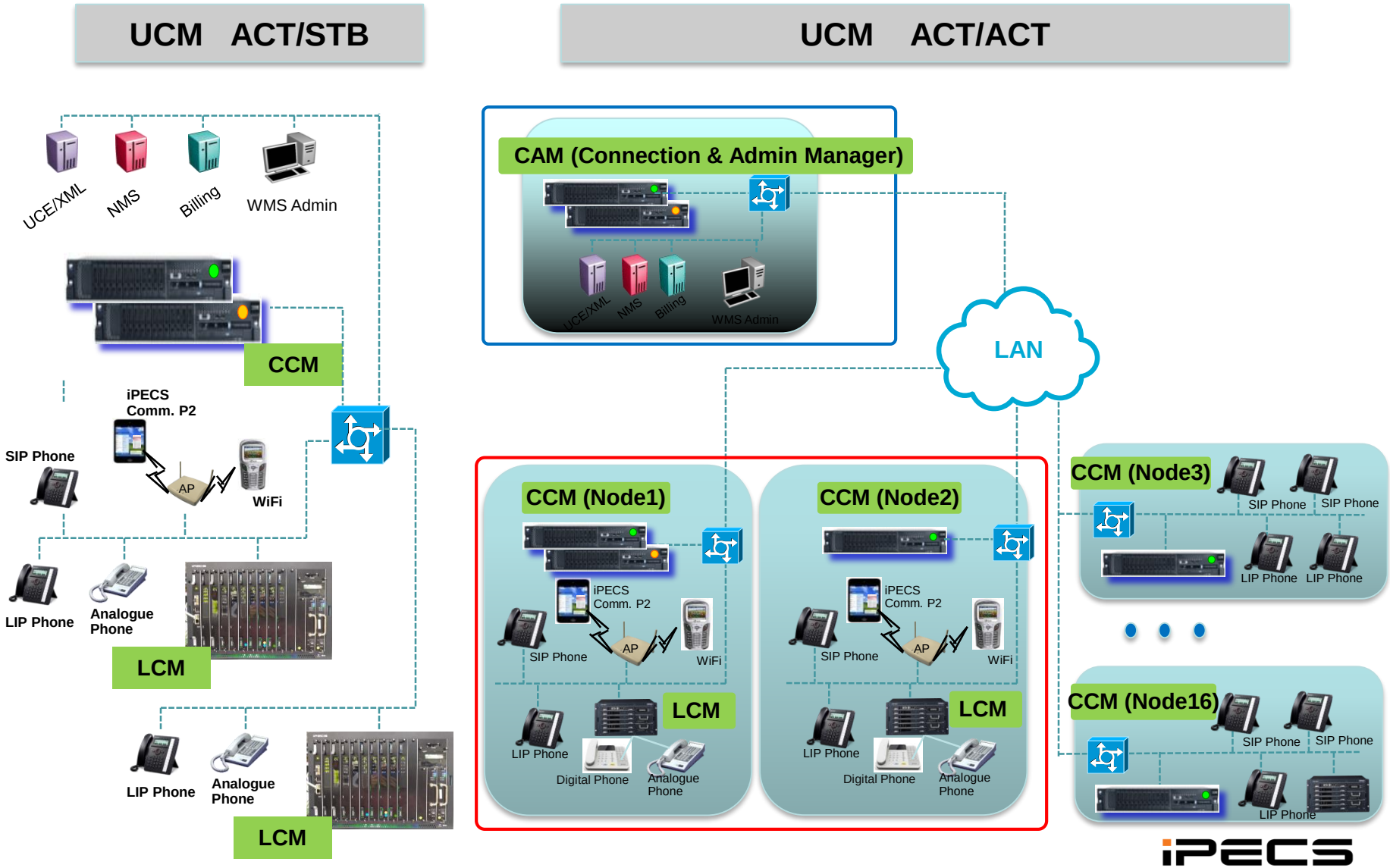
  - **Gateway Module:** Boards for PSTN, ISDN and VoIP interface.

  - **Cabinet :** 19” Standard Rack mountable and including LAN switch
    * 1URMC : Horizontal type (1 slot, 1U)
    * MGC3 : Vertical type (11 slots, 7U)

  - Also, possible to integrate with CM-MGC2, CM-1URMC and CM-GW modules

iPECS
Your Communications Solution

Network Configuration of Communication Manager



iPECS
Your Communications Solution

UCM Network Configuration

UCM ACT/STB

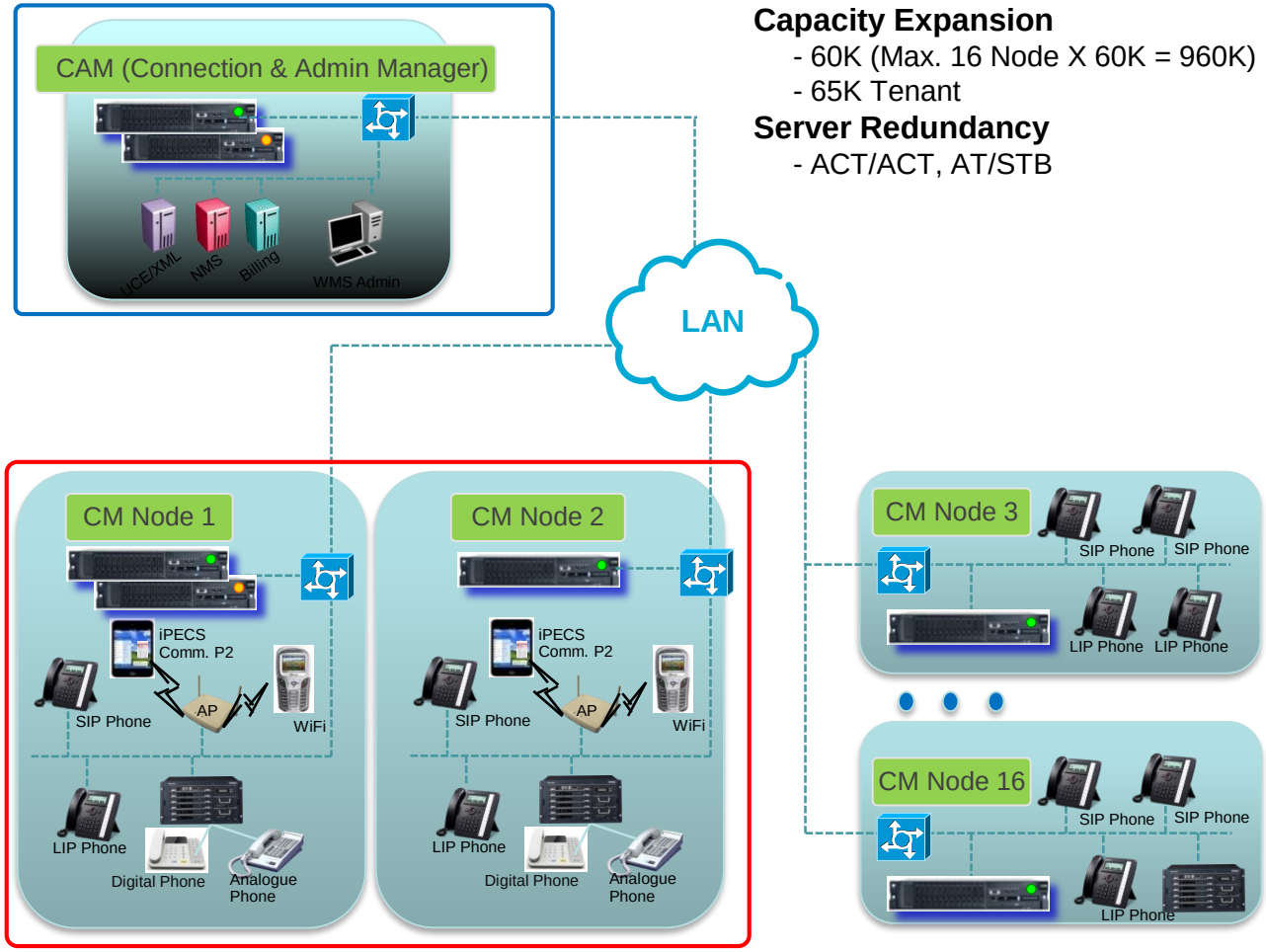
Capacity
- 60K
- 65K Tenant

Server Redundancy
- ACT/STB

UCM ACT/ACT

Capacity Expansion
- 60K (Max. 16 Node X 60K = 960K)
- 65K Tenant

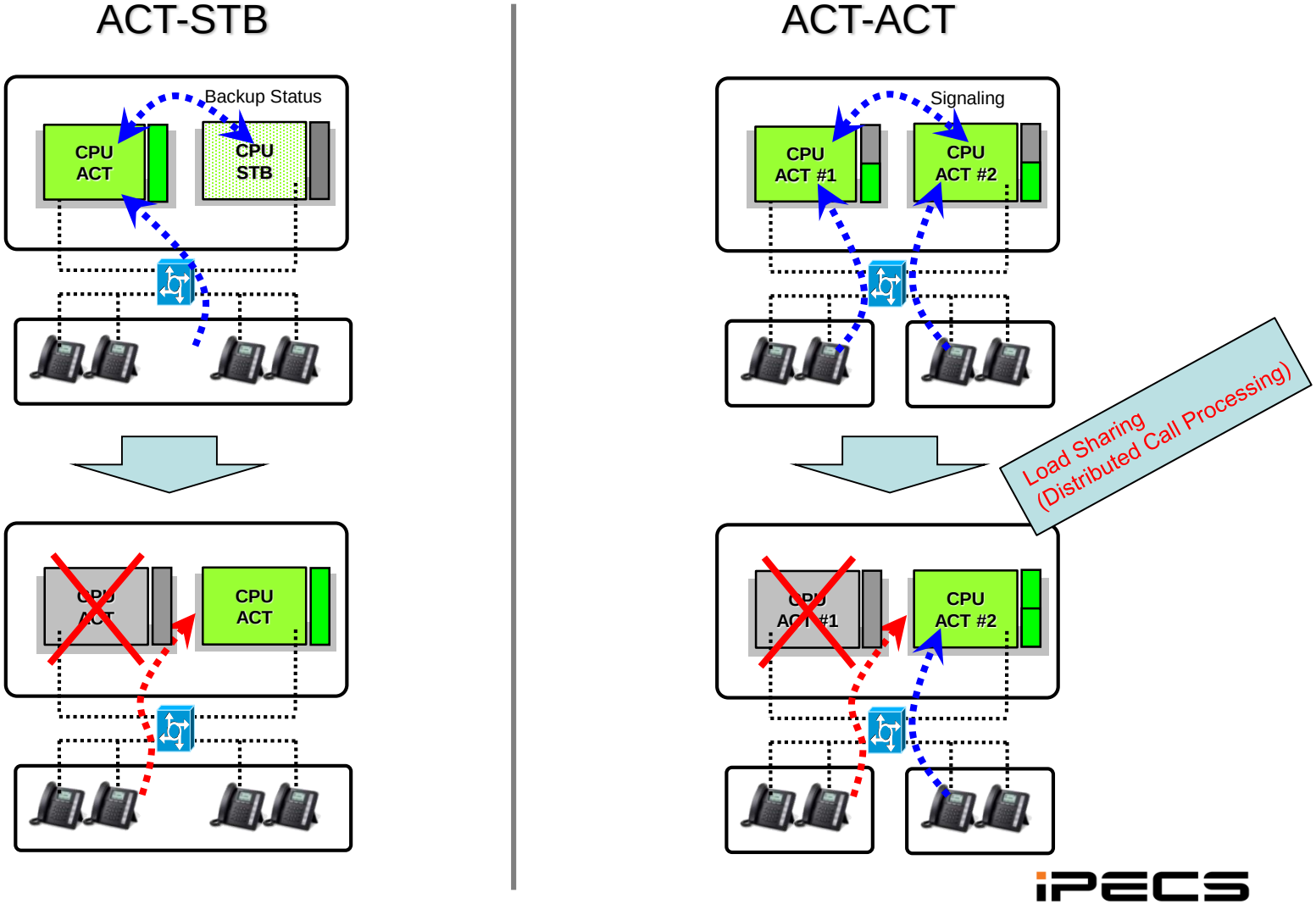
Server Redundancy
- ACT/ACT, AT/STB



iPECS
Your Communications Solution

CPU Redundancy

Active-Active and Active-Standby



iPECS
Your Communications Solution

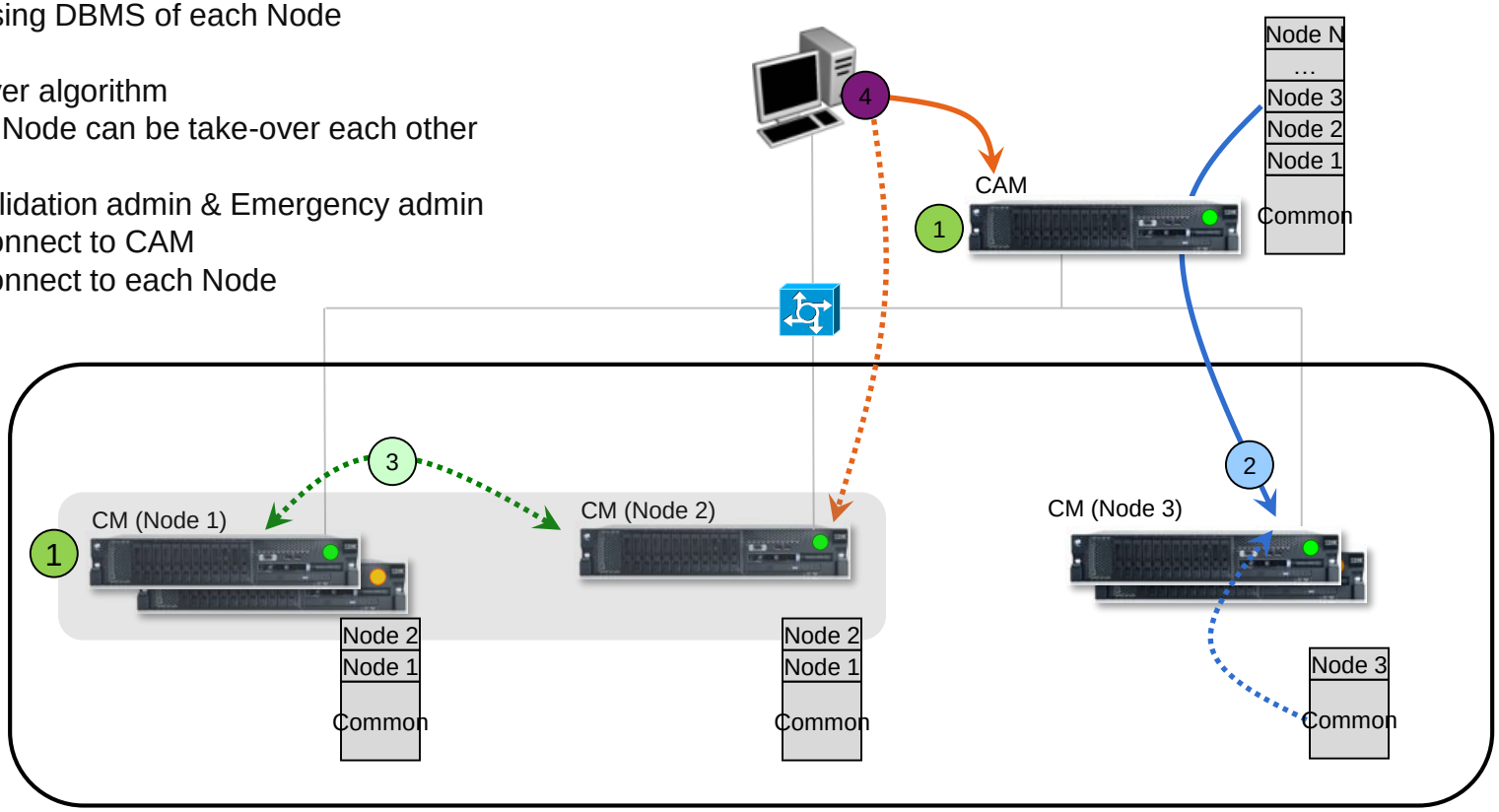
ACT/ACT Platform

1 CM Node & CAM program
- One program for both CM & CAM
- CM & CAM is distinguished by server install

2 ACT Node normal start & Emergency start
- 1: using DBMS of CAM & backup
- 2: using DBMS of each Node

3 Fail-over algorithm
- Two Node can be take-over each other

4 Consolidation admin & Emergency admin
- 1: connect to CAM
- 2: connect to each Node

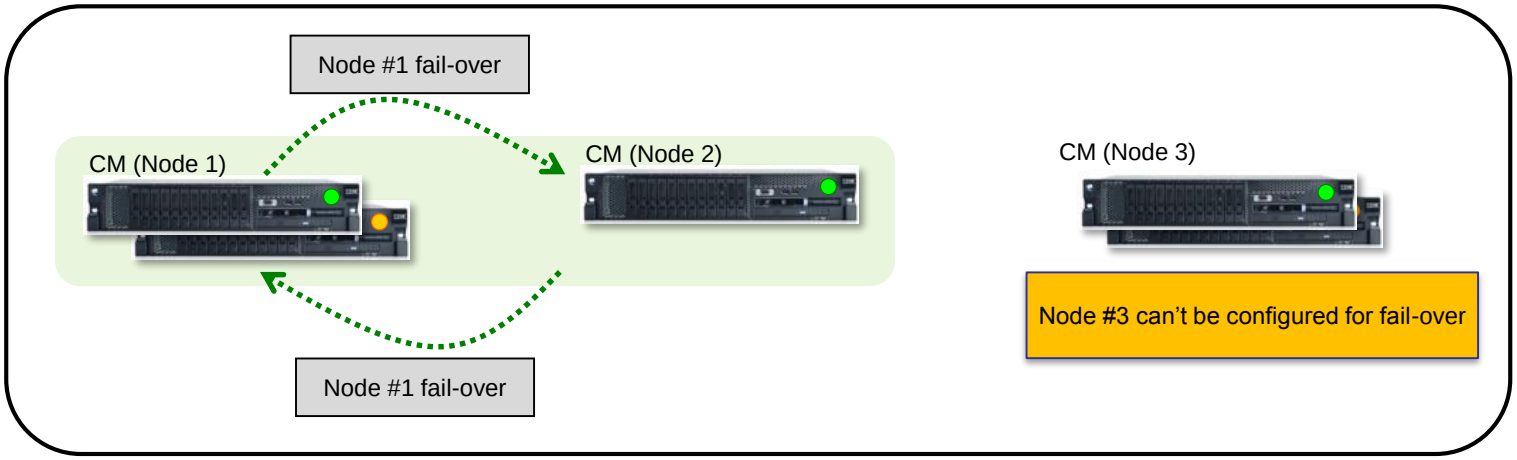


iPECS Your Communications Solution

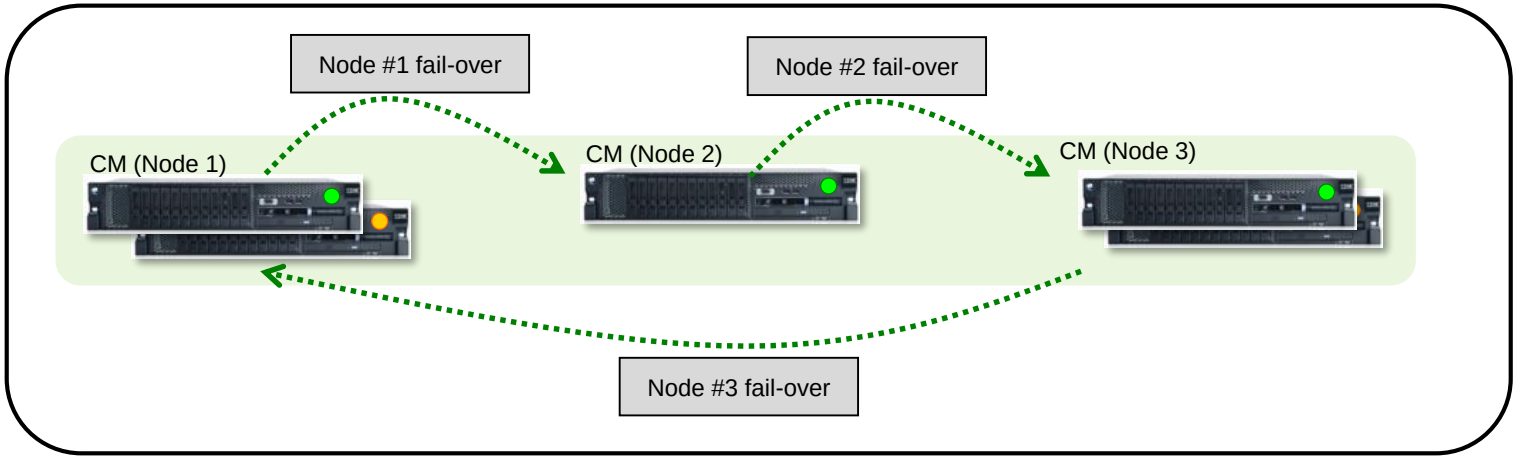
ACT/ACT fail-over mode

UCM 2.0 or higher

1) Node pairing mode

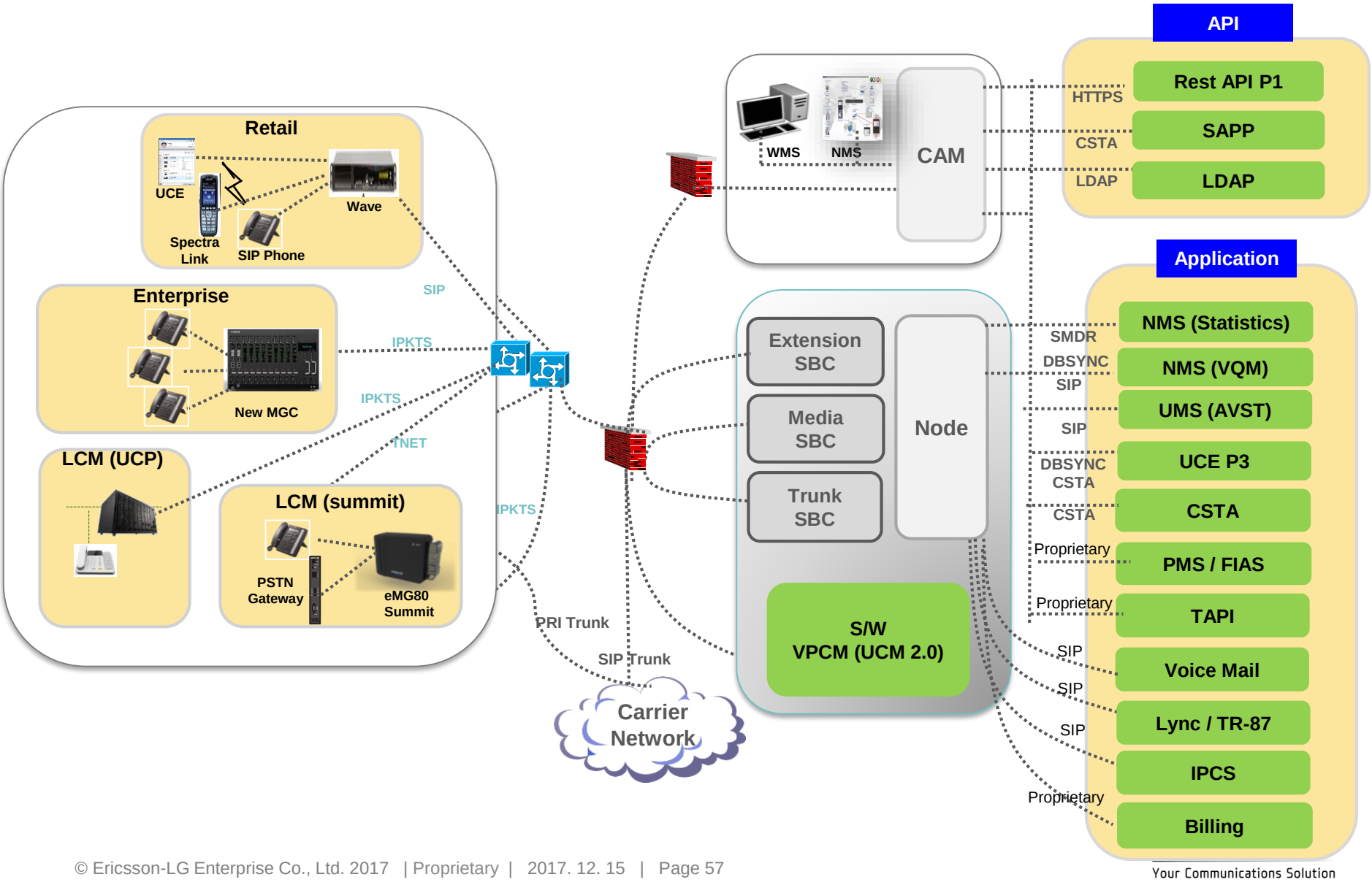


2) Node chaining mode



iPECS Your Communications Solution

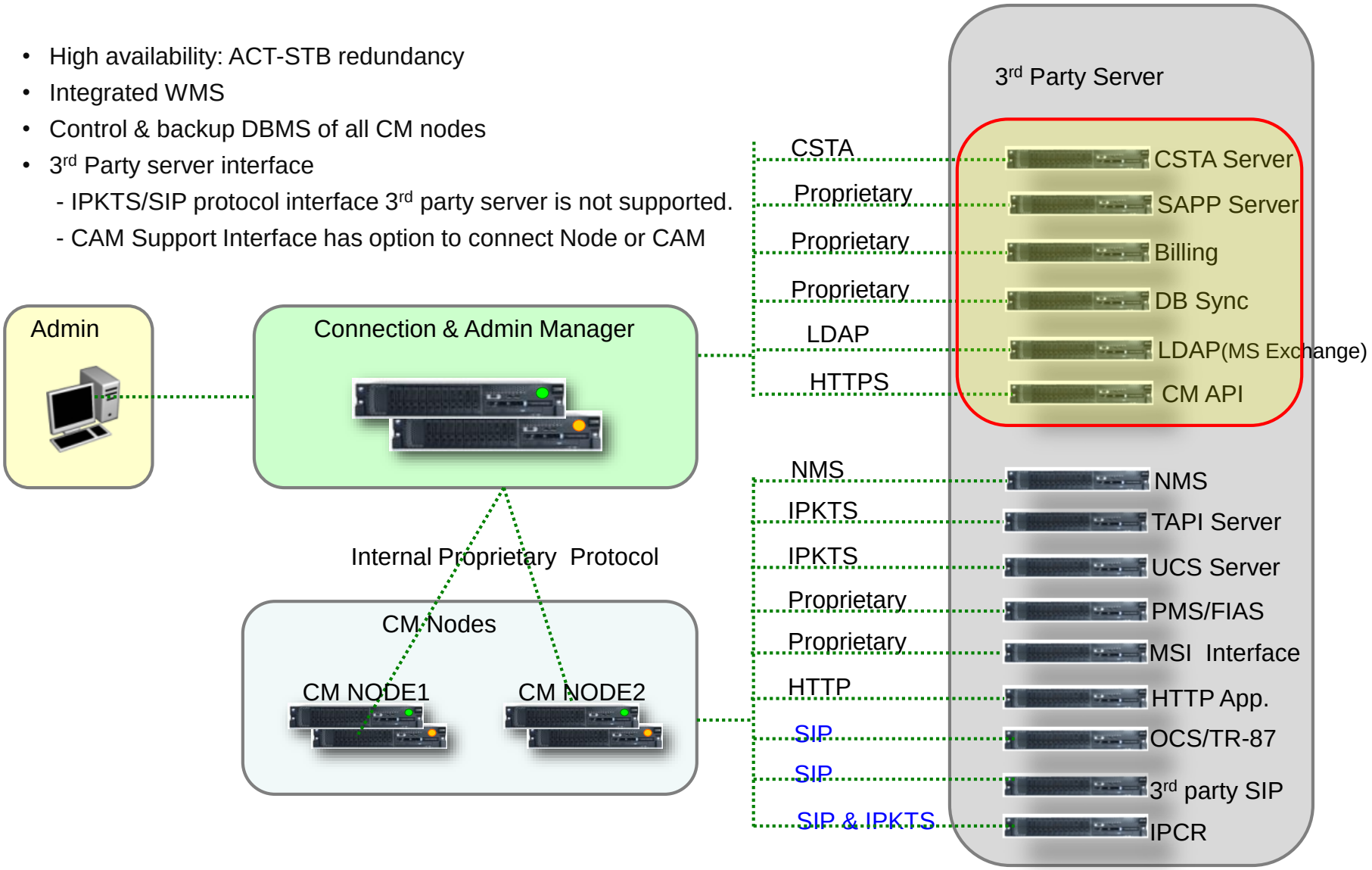
System Configuration



Your Communications Solution

Connection & Admin Manager (CAM)

- High availability: ACT-STB redundancy
- Integrated WMS
- Control & backup DBMS of all CM nodes
- 3rd Party server interface
  - IPKTS/SIP protocol interface 3rd party server is not supported.
  - CAM Support Interface has option to connect Node or CAM

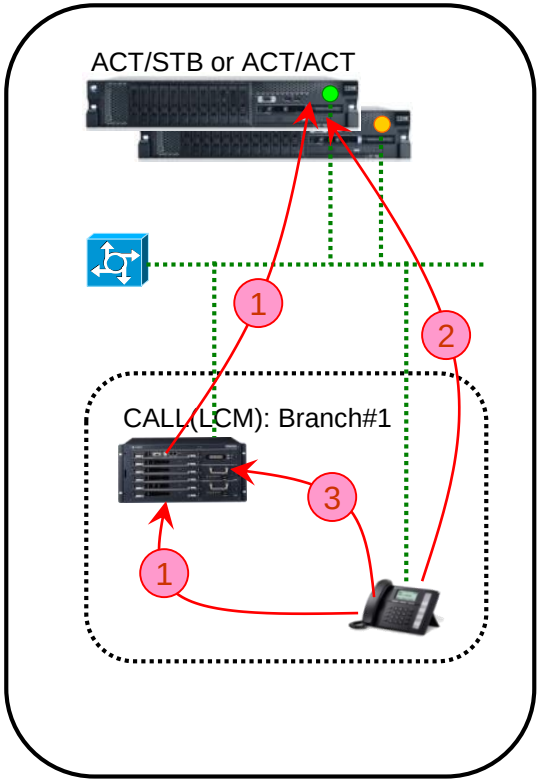


iPECS Your Communications Solution

Local Branch Solution

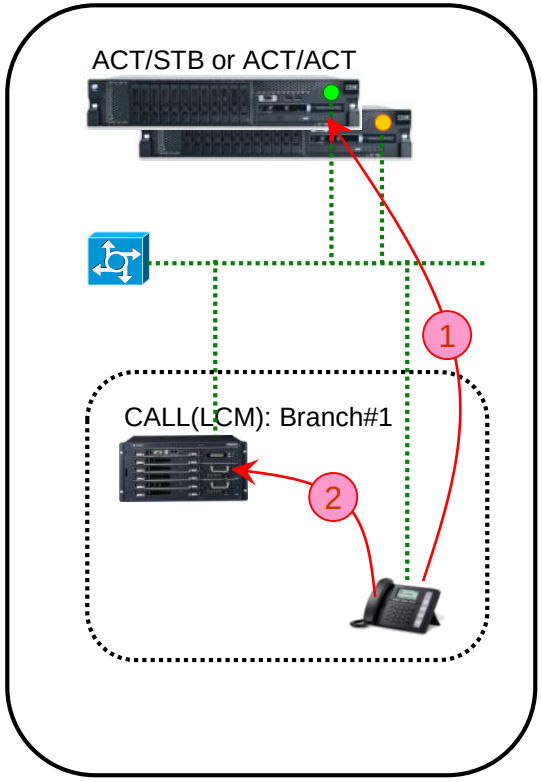
LCM registration priority option can be set by each LCM

LCM First



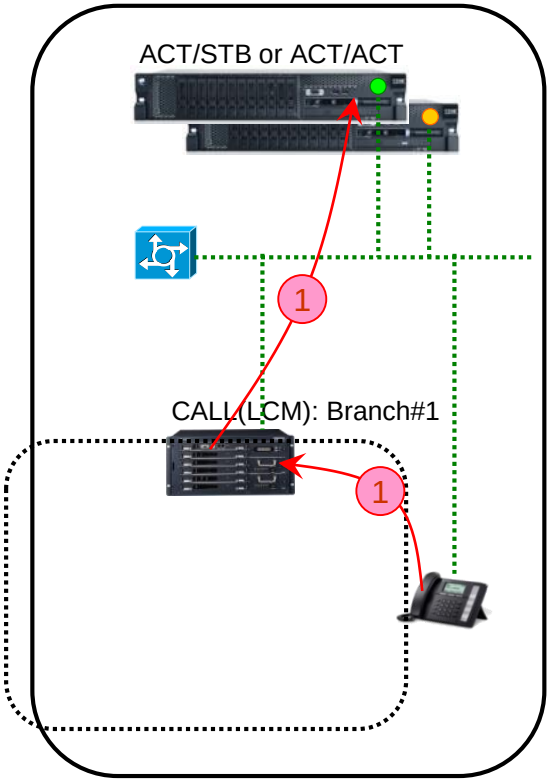
- Same as OLD Configuration
  1: Bypass Mode (CCM(O), LCM(O))
  2: Dual-IP profile feature (CCM(O), LCM(X))
  3: Survival Mode (CCM(X), LCM(O))
- S2K, LIK LCM

CCM First



- New Option (Default)
  1: Bypass Mode (CCM(O), LCM(Don't care))
  2: Survival Mode (CCM(X), LCM(O))
- Only for S2K LCM

LCM Only



- New Option
  - When LCM Subscriber is using Private IP
  1: Bypass Mode (CCM(O), LCM(O))
  2: Survival Mode (CCM(X), LCM(O))
- Only for S2K LCM

ACT STB

iPECS
Your Communications Solution

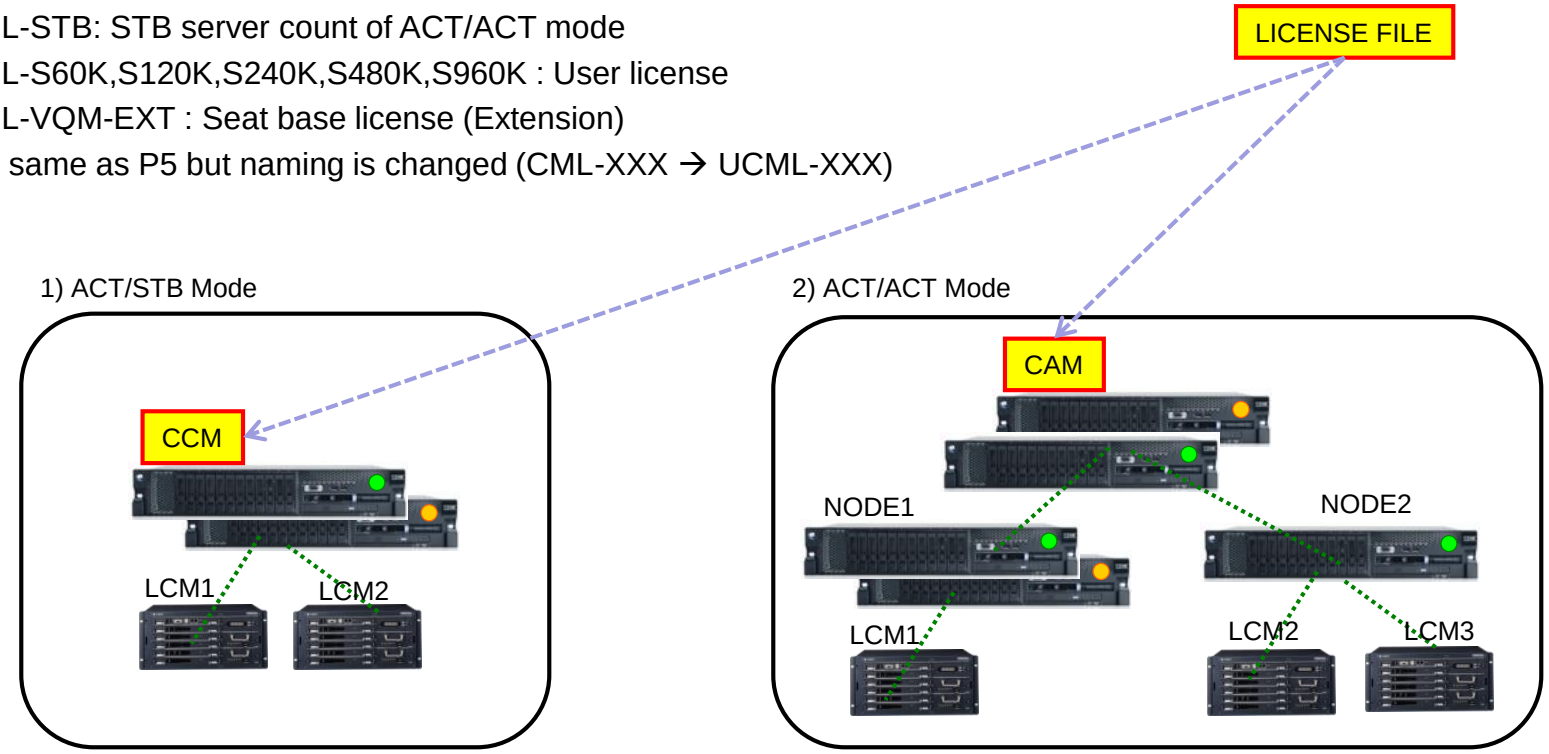
License Policy

License File Loading

- ACT/ACT Mode: CAM
- ACT/STB Mode: CCM (same as P5)

New added license item for UCM

- UCML-ACTACT: ACT/ACT mode enable license
- UCML-NODE: Node count of ACT/ACT mode
- UCML-STB: STB server count of ACT/ACT mode
- UCML-S60K,S120K,S240K,S480K,S960K : User license
- UCML-VQM-EXT : Seat base license (Extension)
- Else: same as P5 but naming is changed (CML-XXX → UCML-XXX)



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Reference Site

POSCO

The world's fourth-largest steelmaker by tonnage. The world's largest steel manufacturing company by market value 12 Buildings & 10,000 Clients

- Capacity : 24K Subscriber, 5K Trunks
- ACT-ACT Mode
- 4 Main Node, 28 branches
  (Seoul, Song-do, Pohang, Kwang yang)
- 70 New MGC units
- Deployment took 3 month (‘16.Dec~’13.Mar, 2017)

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Reference Site

SMPA (SEOUL METROPOLITAN POLICE AGENCY)

- Primary police force for Seoul
- HQ and 39 police stations under SMPA
- UCM is installed in HQ and 28 police stations are integrated with LCMs.

- Capacity : 25.5K lines (Subscriber 10K, Trunk 5.5K)
- ACT/STB mode with a CCM and 28 LCMs
- In service on 4th July, 2017
- ACMD, ACS servers are integrated with UCM

※ ACMD (Application Command Call System)
※ ACS (Automatic Calling System)

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Reference Site

Kim & Chang Law Firm

- First law firm in Korea
- UCM is installed in Seyang main building in Gwanghwamun.
- Remote nine offices are integrated with the UCM.
- Replacement of Alcatel-Lucent PBX and Samsung PBX

- In service : May 19, 2017
- Capacity :
  - IP Terminal : 3,800 EA
  - SLT : 300 EA
  - IP ATD : 6 EA

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Appendix : Data Sheet

Capacity

CATEGORY		VALUE
Subscriber		65,536/NODE
Trunk		40,000/NODE
Slot		65,000/SYSTEM
Tenant		65,000/SYSTEM
Attendant		100/TENANT
Timezone		200/TENANT
Location(LCM)		1,024/NODE
Trunk	Trunk Route	65,000/SYSTEM
	Trunk Route Member	40,000/ROUTE
Digit Restrict	COS	128/TENANT
	Table	3,000/TENANT
	Digit	65,000/TABLE
Digit Conversion	COS	128/TENANT
	Table	20,000/TENANT
	Digit	65,000/TABLE
Digit Map	COS	128/TENANT
	Table	20,000/TENANT
	Digit	65,000/TABLE
CID Conversion	COS	128/TENANT
	Table	20,000/TENANT
	Digit	65,000/TENANT
Tenant ICLID		65,000/TENANT
MDN ICLID		10,000/DN
Conference Room		2,000/TENANT

CATEGORY		VALUE
Hunt Group	Group No	65,000/SYSTEM
	Group Member	250/GROUP
Keyno Group	Group No	65,000/SYSTEM
	Group Member	2,000/GROUP
Pickup Group	Group No	65,000/SYSTEM
	Group Member	250/GROUP
Command Group	Group No	65,000/SYSTEM (999/TENANT)
	Group Member	128/GROUP
Paging Group	Group No	65,000/SYSTEM (99/TENANT)
	Group Member	128/GROUP
PTT Group	Group No	65,000/SYSTEM (9/TENANT)
	Group Member	128/GROUP
Interphone Group	Group No	65,000/SYSTEM (200/TENANT)
	Group Member	100/GROUP
Group Speed	Group No	10,000/TENANT
	Group Member	65,000/GROUP
Forward Group	Group No	250/TENANT
	Group Member	10,000/GROUP
ACD Group	Group No	65,000/SYSTEM
	Agent member	20,000/GROUP
	Agent ID	20,000/TENANT
	Pilot Group	65,000/SYSTEM
System Speed		10,000/TENANT
SS7 Signal point		255/SYSTEM
Zone No		256/TENANT
ACL Table		10,000/SYSTEM

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Appendix : Feature List

Call Processing	Call Processing	Call Processing	Trunk
Call Hold	Trunk Queuing	Auto Attendant / Digital Receptionist	Trunk Release Guard Time
System Hold	Step Call	Web-based Management Console	Trunk Ring Detect
Automatic Hold	Voicemail	Real Time Web-based System Status	Dial Pulse Signaling
Music on Hold	Record New Voice Prompts From Phone	Integrated Web Server	DID (direct in dial)
Music on Hold Playlist or Line In	Call Recording	Backup and Restore	DISA (direct inward system access
Do Not Disturb	IP call recording	Vmware compatible	DTMF tone control
Call Logging	MWI – Message Waiting Indicator	Temporary Station Lock	IP trans-coding & rtp relay
Call Reporting	Message wait/call back	Security	IP trunk
Call Transfer	BLA (Bridge Line Appearance)	TLS/sRTP	H.323 Trunk
Transfer Directly to VM	Class of Service	Terminal lock for unauthorized user	ISDN
Blind Call Transfer	Dial Plan	Localization	CLI Display
Attended Call Transfer	Emergency Calls from Unnamed IP phone	Multiple language support	ISDN supplementary services
Call Forward	Fax over IP	Speed dial	ISDN Call Deflection
Pilot hunt call forward	Hot Line Service	Speed Dial Pause Insertion	ISDN Malicious Call Id
Preset call forward	Automatic Answer	Station Speed Dial	ICLID ROUTING
Call Forward on Busy	Last Number Dialed	System Speed Dial	Automatic Network Dialing
Call Forward on No Answer	Line Lockout	Tenant	Alternative Route Selection
Call Routing (DID)	call override	Tenant prefix	Individual Trunk Access
Call Routing (Caller ID)	Short Message Service : SMS	Tenant group	Route Selection For Each Trunk
Alternative Route Selection (ARS)	Message Wait Reminder Tone	Command call	Trunk Route Service
Auto Called Number Redial (ANCR)	BLF Status Updates	Command call	Incoming Route Option
Caller ID	Intercom call	cost control	Outgoing Route Option
CID dependant ring	Intercom call hold	Account code	Alternative Incoming Route Service
Trunk IC/OG CID change	Intercom call answer mode change	Authorization code	Alternative Outgoing Route Service
Conference Calling	Intercom step call	CDR/SMDR	Route Transit Service
Conference Rooms	Paging	LCR: least cost routing	Trunk Access Code Service
Multi-Party Voice Conference	Internal Page	data control	Trunk Own Code Service
Call Intrusion	Meet Me Page Answer	Data line security	Route Cli Service
Call Intercept	Push-to-talk paging	Fax bridge	Trunk Direct Transit Service
Call Parking	Ring Extension and Mobile Simultaneously	Trunk	H.323 Multi Route Service
Call Pickup	Executive/secretary	CO line flash	Trunk Inter Digit Timer Service
Call Back	Executive/secretary forward	Trunk Route Groups	Trunk Dtmf Duration Service
Call Waiting	Mobile extension	Trunk Preset Forward	R2 Comfort
CampOn	Attendant	Trunk Ring Assignment : Dil	CAC : Call Admission Control

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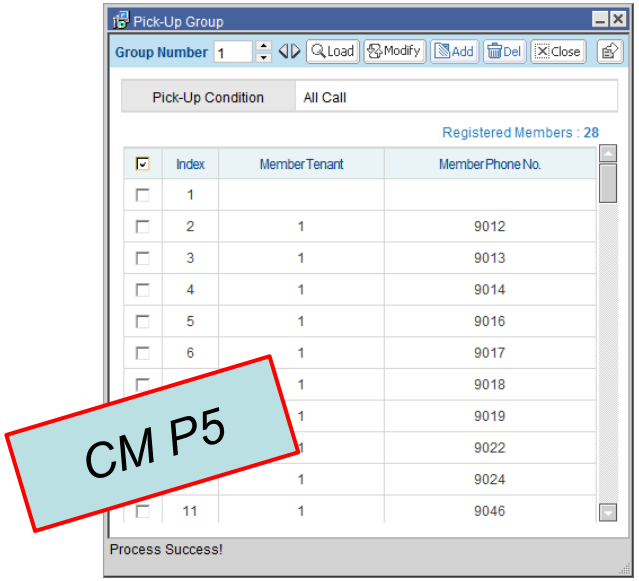
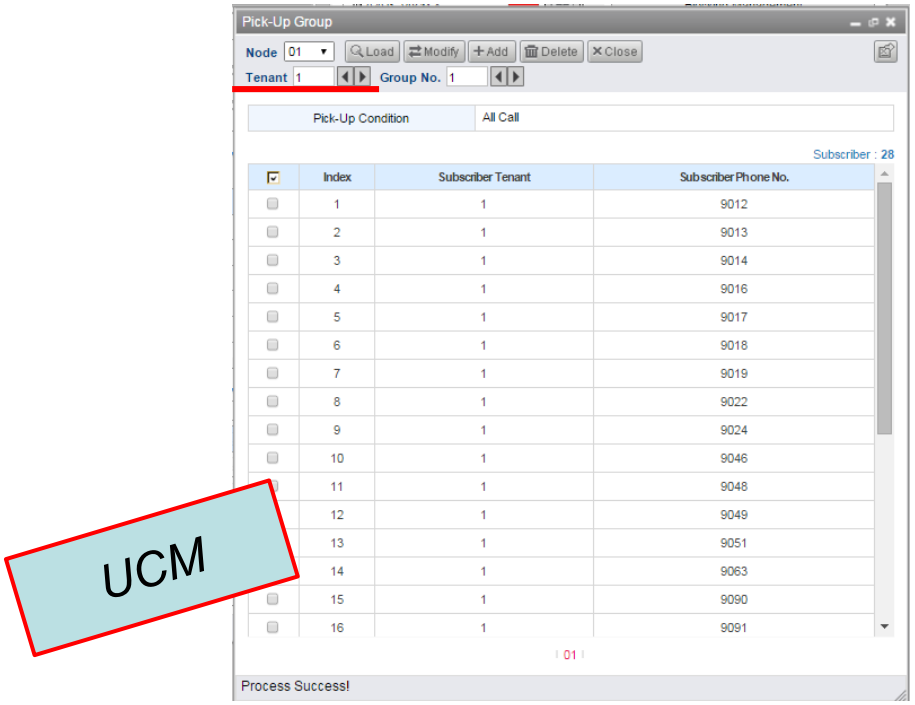
Appendix : Tenant based data

- Some system based data is changed to tenant based data
  - Pick-up group
  - Pilot hunt group
  - System time zone
  - Digit restrict table
  - Digit conversion table
  - Etc…





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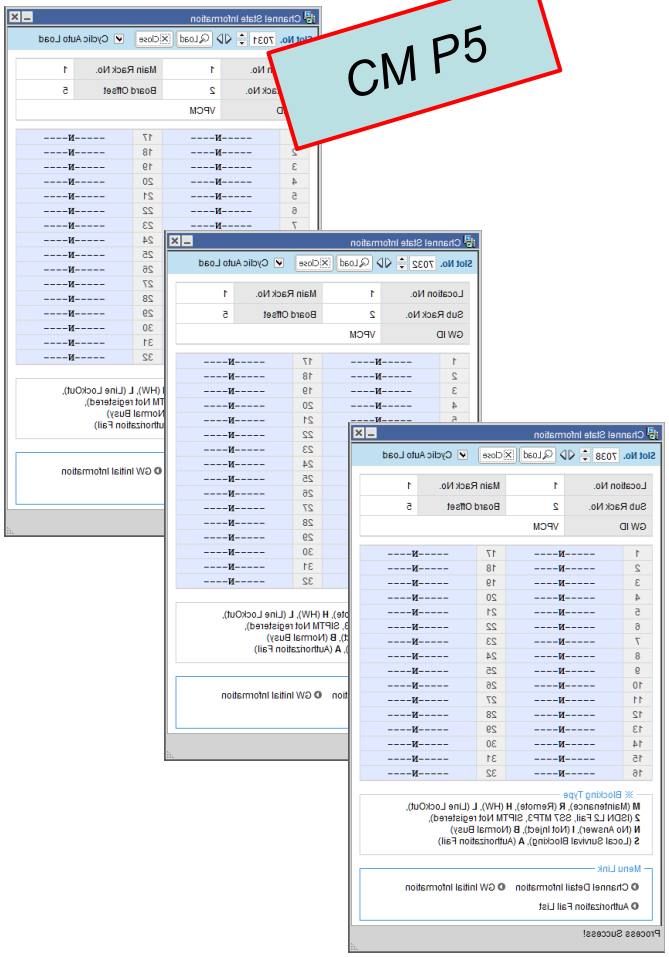
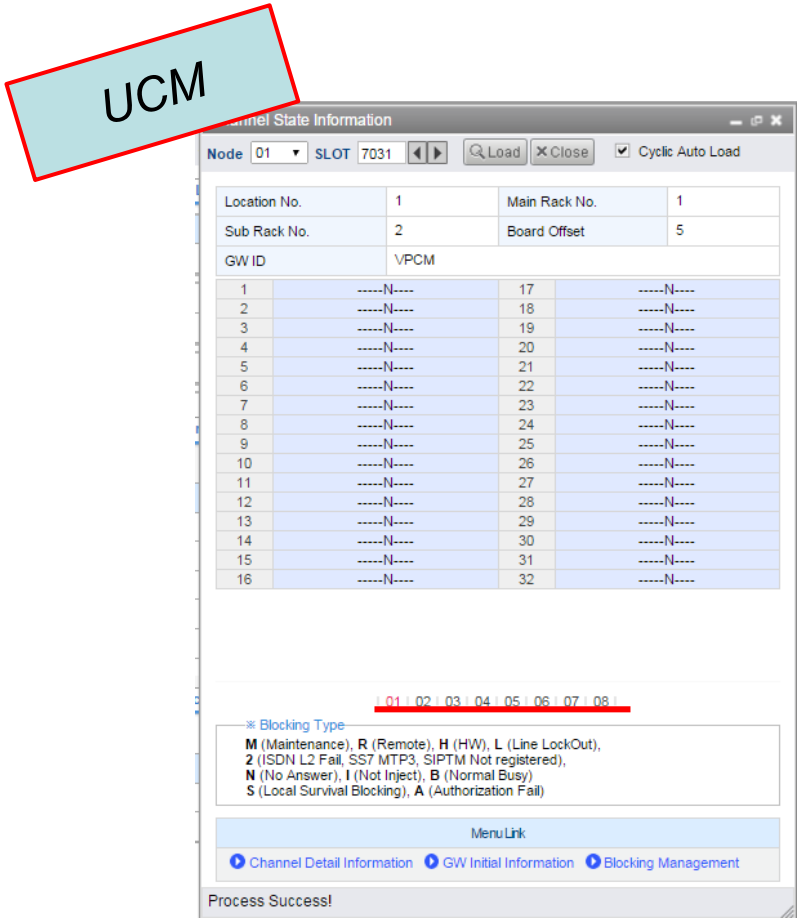
Appendix：VPCM use 1 slot

256 Channels per 1 slot

P5 VPCM uses 8(32chs/slot) continuous slots, but UCM uses only 1 slot(256chs/slot).





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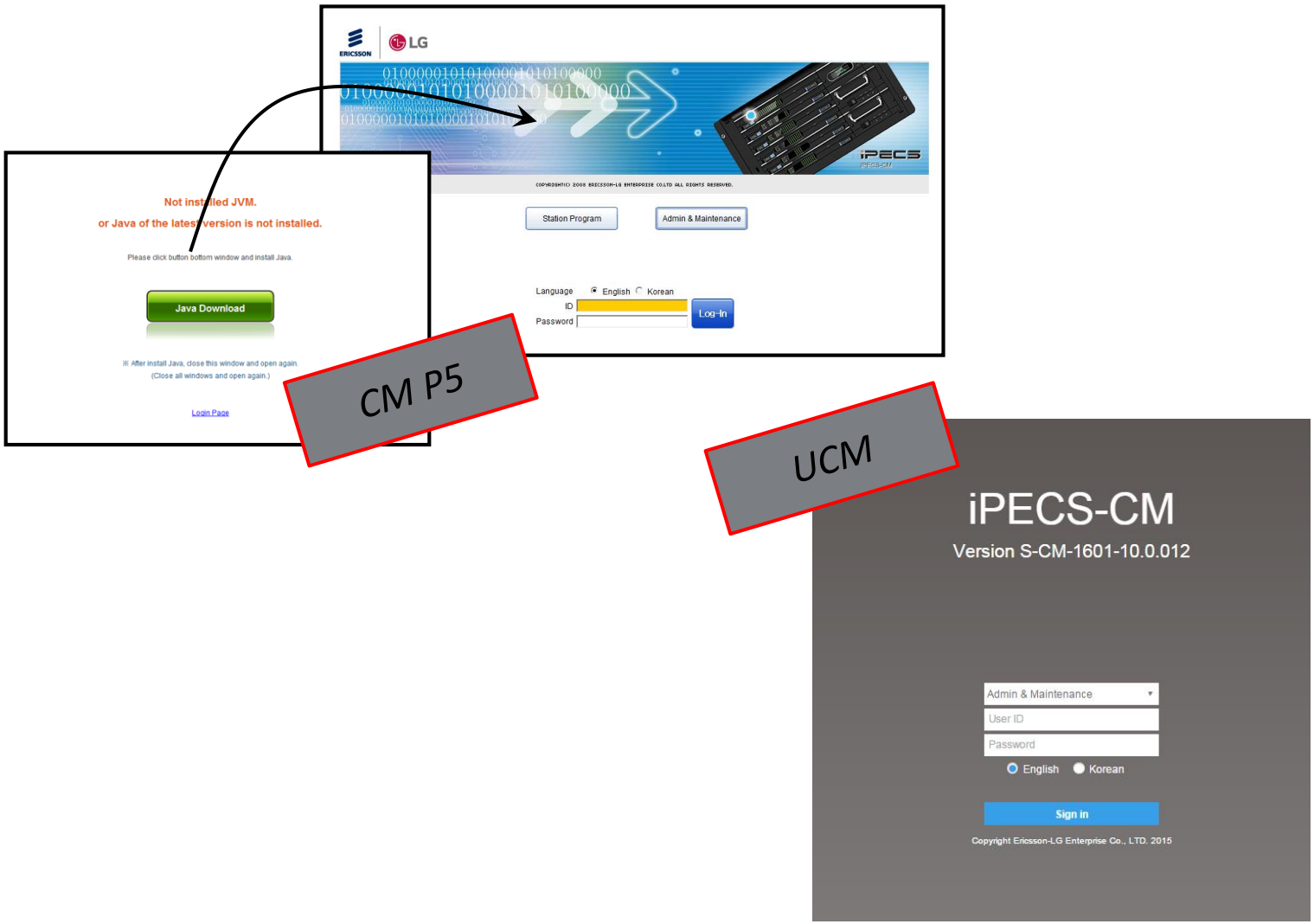
Appendix : UCM WMS does not use JVM

Log-in WMS



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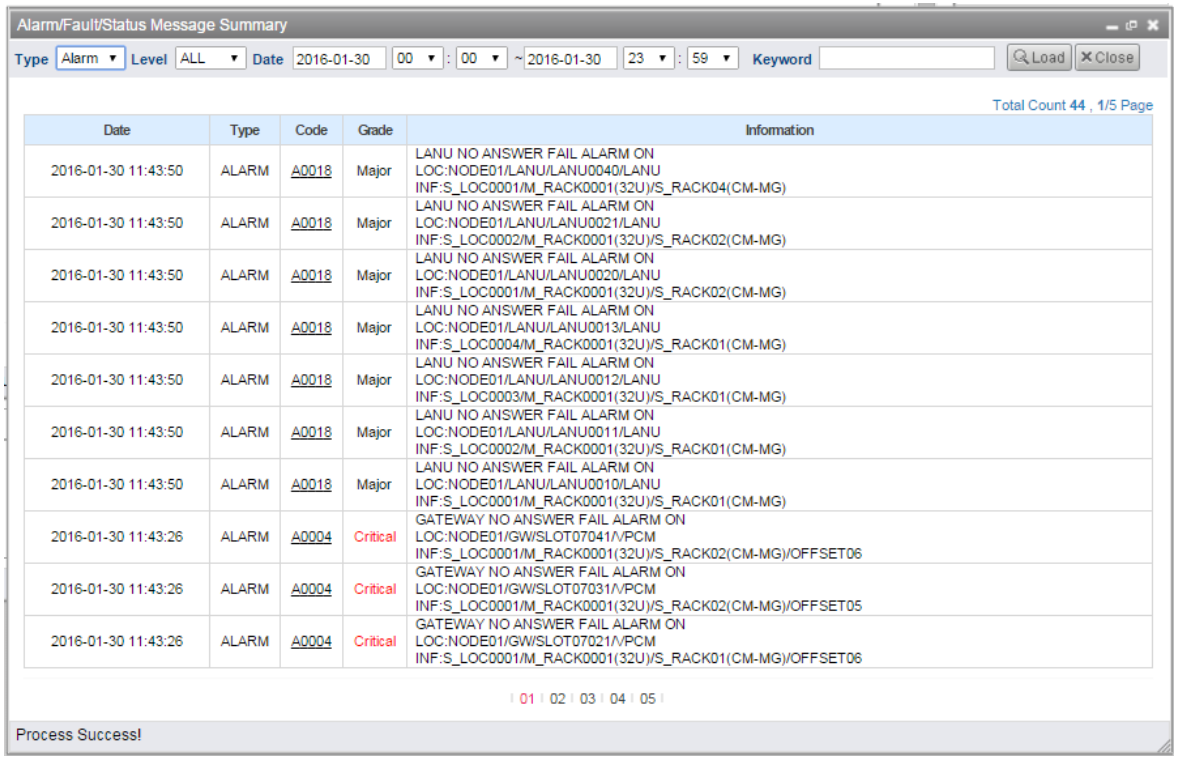
Appendix : Alarm/Fault/Status summary window

Fault and Alarm

Alarm/Fault/Status message summary window is added (filtering is possible)



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Appendix : Upgrade Procedure

UCM to UCM

There is no needed to upgrade DBMS manually when upgrading the system (except P5 data migration)

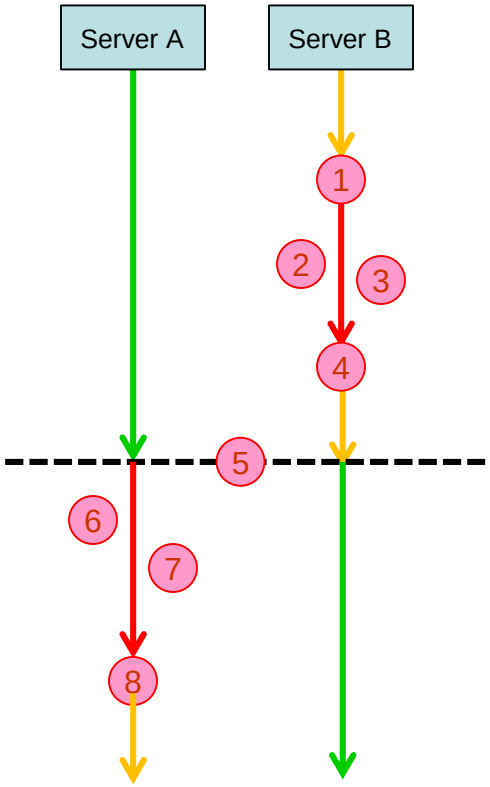
Upgrade Procedure: CAM -> Node1 and the LCMs (Repeat for all Nodes)

[Step 1: STB server upgrade]

1) Kill the program of STB server → ipecscm_xdog.py –k
2) Upload new ipecscm & wms install program to STB server
3) Upgrade ipecscm & wms program
4) Restart the program of STB server → ipecscm_xdog.py –f
   : Automatic DB upgrade will be done in this moment

[Step 2: ACT server upgrade]

5) Kill the current ACT server → ipecscm_xdog.py -k
   STB server will be changed to ACT server (The new version is applied)
6) Upload new ipecscm & wms install program to current STB server
7) Upgrade ipecscm & wms program
8) Run the program of STB server → ipecscm_xdog.py –f
   - Copy DB from ACT server will be done in this moment



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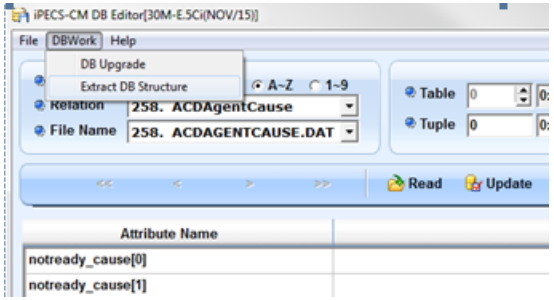
Appendix : Upgrade Procedure

CM to UCM

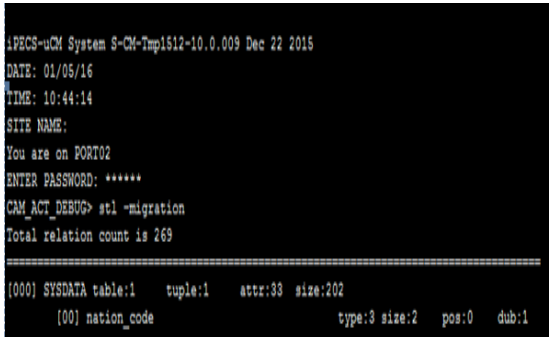
[Step 1: Backup CM data to PC]

1) Copy CM DBMS(home/ipecscm/DBMS) to a PC through FTP or SAMBA
2) Upgrade CM DBMS to a certain version*(Note1)* with DBEdit tool.
   If the system was already upgraded to above that version, skip this.
3) Extract DBMS structure(*.INF) of OLD DBMS(*.DAT) with DBEdit tool



[Step 2: Install UCM system & Migration]

4) Install UCM software according to Install Guide.
5) Upload all DBMS directory files of PC to Server(*.DAT + *.INF)
6) Connect UCM system through telnet trace port with password "ipsdeb"
7) Enter "stl –migration", this will be several minutes*(Note2*).
8) Reboot the server



(Note1) Migration Possible Version
- V3.1 : Not Support
- V3.5 : 3.5Cs
- V4.0 : 4.0Br
- V5.0 : 5.0Bw
- V5.5 : 5.5Ci

(Note2)
The P5 DBMS is moved to Node1
System base data changed to tenant base data (automatically moved to tenant1)
(Note3)
Exceptions : SS7, Internal VM , Digitmap of SIP Provisioning

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