

UNIVERGE 3C™

REDEFINING ENTERPRISE
COMMUNICATIONS

NEW
ENHANCED
VERSION

UNIVERGE 3C is a powerful and innovative single software solution that provides an organization with rich Telephony, Unified Communications and Collaboration operating across premises, cloud or hybrid environments.

UNIVERGE 3C allows employees to connect from any location, on virtually any device, and collaborate with colleagues, customers and partners. The Services-Oriented Architecture with web services support ensures business continuity along with comprehensive management tools to administer it all.



CONNECT.

UNIVERGE 3C enables colleagues to be contacted quickly and easily using company directory and Presence for real-time availability, inside and outside the office.



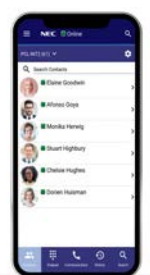
COMMUNICATE.

Users benefit from a single contact number across multiple devices, including seamless call transfers between public mobile networks and enterprise networks when a user is on the move.



COLLABORATE.

Fully interactive collaborations can be arranged in seconds - video conferencing, communal whiteboards and screen sharing are just a click away. **Welcome to NOW!**



SYSTEM CAPACITY

Total System Capacity¹

- > Up to 60.000 lines with any combination of registered station and trunk²
- > Up to 30.000 UC enabled user seats
- > Up to 20 Unified Communications Manager (UCM) server nodes
- > Up to 1.000.000 Busy Hour Call Attempts
- > Up to 5.120 media server sessions used for any combination of: voicemail, auto attendant, call monitor/ barge, callrecording.
- > Up to 20.480 concurrent mobility calls³
- > Up to 2.000.000 contact entries in the 3C system

UC MANAGER SERVER CAPACITY

Per UCM Server Node⁴

- > Up to 6.000 lines⁵ with any combination of registered station and trunk. Including up to 999 C-link trunks⁶
 - > Up to 3.000 UC enabled user seats
 - > Up to 50.000 Busy Hour Call Attempts
- Voicemail, auto attendant, call monitor/barge, call recording
- > Up to 1.024 concurrent mobility calls

CMM SERVER CAPACITY

Per CMM Server Node

- > Up to 300 concurrent meeting sessions including any mix of phone only, phone and web and web only participants⁷
- > Up to 500 concurrent meeting sessions when the "multiple CMM Service configuration" is applied⁸
- > Any combination of meeting types and media types up to the maximum concurrent sessions licensed. Meeting types include:
 - Public and Private
 - Scheduled and Instant/Ad hoc
 - Permanent and Reoccurring
- > Up to 16 web browser video sessions per meeting⁷

SESSION INITIATION PROTOCOL (SIP) SUPPORT

The following SIP and SIP related standards are supported on the UNIVERGE 3C system⁹:

1. This varies based on the number and class of servers utilized as well as the range of devices and UC client applications utilized.
 2. Stations are SIP based line registrations, hard or soft, including IP Phones and analog phones connected through a media gateway. Trunks are per bearer channel registrations, hard or soft, including tie lines and PSTN connections of various types including analogue, digital and SIP based.
 3. Mobility calls are calls to/from outside phone numbers, assigned to users, either on the PSTN or on another PBX connected over a tie-line.
 4. This varies based on the class of servers utilized as well as the quantity of UC client applications hosted per server, the amount of reserve capacity set aside for fail over scenarios, among others.

SIP Stations

- | | | |
|-------------------------|-----------|-----------|
| > RFC2833 | > RFC3325 | > RFC3842 |
| > RFC3261 | > RFC3326 | > RFC3891 |
| > RFC3262 ¹⁰ | > RFC3428 | > RFC4028 |
| > RFC3263 | > RFC3515 | > RFC4411 |
| > RFC3264 | > RFC3581 | > RFC4412 |
| > RFC3265 | > RFC3665 | |
| > RFC3311 | > RFC3725 | |

SIP Trunks

The core standards document for SIP trunking is RFC3261. Originally defined in RFC2543, the current standard is contained largely in RFC3261 and RFCs 3262-3265.

SECURITY¹¹

Transport Layer Security Encryption (TLS)

- > Call control with SIP
- > Application sessions with HTTPs
- > Configuration file and firmware download with HTTPs

Secure Real-Time Transport Protocol (sRTP) Encryption

- > Audio media streams
- > Video Media streams

Real-Time Messaging Protocol Encryption (RTMPE)

- > UNIVERGE 3C Web Conferencing:
 - Web browser audio media streams
 - Web browser video Media streams
 - Web conferencing content sharing

User Authentication

- > Uniform user credentials with Active Directory authentication

Security Certifications

- > US Department of Defense Joint Interoperability Test Command Unified Capabilities Requirements:
 - Information Assurance
 - PBX level 1
 - Local Session Controller

5. In case of a redundant multi node network, capacity is reserved for fail-over purposes. If one node fails, lines can be spread over the other nodes. In case of "n" nodes, each node can have a primary capacity of ((n-1)*6.000)/n lines, while each backup node will reserve 6000/n lines on behalf of a fail over situation.
 Examples:
 - 2 nodes can support 3.000 primary lines while 3.000 lines will be reserved for fail-over purposes.
 - 11 nodes in a redundant network can support 5.455 primary lines and has 545 lines reserved for a fail over situation.
 6. C-link is a proprietary protocol used to trunk to traditional NEC PBX systems.



MEDIA SESSIONS AND CODECS SUPPORTED

Unified Communications Manager

Audio¹²

Encoding:

- > AMR-WB
- > CLEARMODE
- > G.722
- > G.722.1
- > G.729
- > iLBC
- > G711a (PCMA)
- > G711u (PCMU)
- > SIREN14
- > SIREN22
- > T.38
- > telephone-event
- > v150fw
- > NoAudio

Video

- > H261
- > H263
- > H263-1998
- > H264
- > MPEG4_QVGA
- > MPEG4_VGA

Resolutions:

- > HD: 1280x720, 1920x1080
- > VGA: 640x480
- > QVGA: 320x240
- > CIF: 352x288
- > QCIF: 176x144

Bit Rates:

- > 128 kbps
- > 256 kbps
- > 384 kbps
- > 512 kbps
- > 768 kbps
- > 1024 kbps
- > 1472 kbps
- > 1920 kbps
- > 2048 kbps

Frame Rates:

- > 10 fps
- > 15 fps
- > 30 fps

Web

- Chat** > XMPP

Collaboration Meeting Manager

- > RTMP

- > RTMP

- > 240x144 (8 fps)
- > 256x154 (10 fps)
- > 320x192 (20 fps)
- > 640x384 (20 fps)

- > 50 kbps
- > 100 kbps
- > 512 kbps
- > 1000 kbps

- > 8 fps
- > 10 fps
- > 20 fps

- > http/https

- > http/https

7. This varies based on the class of server utilized. Capacity and performance will also vary based on network infrastructure and bandwidth.
 8. This is accomplished by means of separating the UNIVERGE 3C's Phones Server module from the other parts of the CMM server.
 9. NEC does not claim to support all aspects of these standards, and does not ensure full interoperability with any SIP device. NEC does ensure the features and functions for certified SIP stations. See the NEC product manuals for full details.

10. Limited support for RFC3262.
 11. Capabilities vary based on selected endpoints.
 12. Supported codecs and media format vary by endpoint. Certain media services may restrict codec use. Refer the UNIVERGE 3C system requirements for details.



OPERATING SYSTEMS AND ENVIRONMENTS**Unified Communications Manager Server**

- > Microsoft® Windows® Server 2016 64-bit
 - Standard or Datacenter w/GUI - English
- > Microsoft® Windows® Server 2012 R2 64-bit
 - Standard or Datacenter w/GUI - English

Collaboration Meeting Manager Server

- > Ubuntu v14.04 LTS 64-bit

Desktop UC Client

- > Microsoft® Windows® 10
- > Microsoft® Windows® 8.1
- > Microsoft® Windows® 7 SP 1
- > Apple Mac OS X 10.6 or later

Outlook Connect add-in

- > Microsoft® Outlook® 2016
- > Microsoft® Outlook® 2013
- > Microsoft® Outlook® 2010
- > Microsoft® Windows® 10
- > Microsoft® Windows® 8.1 SP1
- > Microsoft® Windows® 7 SP1

Mobile UC Client

- > Apple® iOS 10.3 or later
- > Google™ Android™ OS 5 or later

Collaboration Client

- > Apple® iOS 7.1 or later
- > Google™ Android™ OS 4.1 or later

IT INFRASTRUCTURE COMPATIBILITY**Virtualized Server Support**

- > Hypervisors: Hyper-V®, VMWare EXSi™
- > The Host as well as Guest Operating Systems require the same operating systems as the listed in the section 'Operating Systems and Environments' of this document

Microsoft Active Directory Integration

- > Windows 2016 or 2012 Schema
- > Single Forest & Multiple Forest integration
- > User authentication
- > User information and details
- > Directory search

Microsoft Exchange Integration

- > Exchange 2016, 2013 SP1, 2010 SP3, Office 365
- > Voice mail messaging / Unified Messaging
- > Global Address List Search
- > Calendar presence

Network Services

- > Dynamic Host Configuration Protocol (DHCP)
- > Domain Name Services (DNS)
- > Multicast IGMPv2 (optional)

High Availability

- > UCM Servers
 - Primary UCM Server: 1+1 Active/Standby using virtualization and automated live migration
 - Secondary UCM Servers: N+1 Active/Active
 - Periodic database replication to all secondary servers
- > CMM Server
 - 1+1 Active/Standby using virtualization and automated live migration
- > Media Gateways¹³
 - Automated failover/failback to designated UCM servers
- > IP Phones¹³
 - Automated failover/failback to designated UCM servers

13. Capabilities may vary depending on the media gateways used.

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