

VocalTec Ensemble Architecture (VEA) Origination Gateway Requirements

| | Single span gateway | Dual span gateway | >Dual span gateway |
|----------------------|---|--|--|
| CPU (not dual) | Pentium II 266 or higher (400 MHz recommended) | Pentium II 300 or higher (400 MHz recommended) | Pentium II 350 or higher (400 MHz recommended) |
| RAM | 256 MB or more | 256 MB or more | 256 MB or more |
| Hard Drive | 4.3 GB or more | 4.3 GB or more | 4.3 GB or more |
| Operating System | NT Server 4 w/Service Pack 3 | NT Server 4 w/Service Pack 3 | NT Server 4 w/Service Pack 3 |
| Max Analog ports | 16 | 32 | NA |
| Analog configuration | <ul style="list-style-type: none"> Qty (1) Dialogic D/160 Qty (1) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 full length ISA slot for Dialogic 1 full length PCI slot for AudioCodes | <ul style="list-style-type: none"> Qty (2) Dialogic D/160 Qty (1) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 full length ISA slot for Dialogic 1 full length PCI slot for AudioCodes | NA |
| Max T1 ports | 24 | 48 | 96 |
| T1 configuration | <ul style="list-style-type: none"> Qty (1) Dialogic D/240SC or D/480SC2-T1 Qty (1) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 full length ISA slot for Dialogic 1 full length PCI slot for AudioCodes | <ul style="list-style-type: none"> Qty (2) Dialogic D/240SC or Qty (1) D/480SC2-T1 Qty (2) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 or 2 full length ISA slots (depends on Dialogic choice) 2 full length PCI slot for AudioCodes | <ul style="list-style-type: none"> Qty (2) Dialogic D/480SC2-T1 Qty (3) AudioCodes TrunkPack VoIP 100/B SC Bus Version 2 full length ISA slots for Dialogic 3 full length PCI slots for AudioCodes |
| Max E1 ports | 30 | 60 | 120 |
| E1 configuration | <ul style="list-style-type: none"> Qty (1) Dialogic D/300SC or D/600SC2-E1 Qty (1) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 full length ISA slot for Dialogic 1 full length PCI slot for AudioCodes | <ul style="list-style-type: none"> Qty (2) Dialogic D/300SC or Qty (1) D/600SC2-E1 Qty (2) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 or 2 full length ISA slots (depends on Dialogic choice) 2 full length PCI slots for AudioCodes | <ul style="list-style-type: none"> Qty (2) Dialogic D/600SC2-E1 Qty (4) AudioCodes TrunkPack VoIP 100/B SC Bus Version 2 full length ISA slots for Dialogic 4 full length PCI slots for AudioCodes |

| Category | Requirements |
|-------------------------|---|
| Hardware | <ul style="list-style-type: none"> • Gateway - See preceding table • Gatekeeper - Windows NT Server 4.0 w/Service Pack 3, Pentium II 266 MHz, 256 MB RAM, 4.3 GB HD • Network Manager - Windows NT Server or Workstation 4.0 w/Service Pack 3, Pentium II 266 MHz, 128 MB RAM, 2 GB HD • Uninterruptible power supply (UPS) with automatic, graceful shutdown software (in case of extended power outages) • 24 (or more) ports of Dialogic telephone network interface capacity Digital D/240SC-T1 or D/300SC-E1. • AudioCodes TrunkPack – VoIP/100B (SC Bus Version) VoIP Compression Board for gateway |
| Software | <ul style="list-style-type: none"> • VocalTec Ensemble Architecture Software Version 1.02 or higher • Windows NT Server version 4.0 with Service Pack 3 (Network Manager can use NT Workstation, if desired) • pcANYWHERE32 8.0 (available from www.symantec.com or www.warehouse.com) • VocalTec VEA, Dialogic and Windows NT SNMP MIBs |
| Gateway capacity | <ul style="list-style-type: none"> • 24 (or more) Universal ports upon deployment with WWExchange Service. • Plans in place to install at least one additional 24-port gateway per location within 60 days of activation. |
| IP bandwidth (capacity) | <ul style="list-style-type: none"> • T-1= 256 (or more) Kbps of dedicated bandwidth for the first 24 lines of termination, 10.6Kbps per line. 256 (or more) Kbps for each additional 24 lines of termination. • E-1= 320 (or more) kbps of dedicated bandwidth for the first 30 lines of termination. 320 (or more) Kbps for each additional 30 lines of termination. • The IP connection must be directly connected, or have a high quality connection, to a first tier regional Internet backbone. |
| PSTN capacity | <ul style="list-style-type: none"> • 24 (or more) lines, preferably using a digital T-1 or E-1 connection • Plans in place to install at least 24 additional lines within 60 days of activation. |
| Redundancy | <ul style="list-style-type: none"> • A second active gateway/gatekeeper or spare gateway/gatekeeper on site or: • At least the following spare PC components on site: <ul style="list-style-type: none"> • A replacement Dialogic network interface card • A replacement AudioCodes VoIP Compression Card • PC power supply, motherboard, RAM, hard drive, fan |
| Voice quality | <ul style="list-style-type: none"> • Comparable to ITXC reference gateway |
| Packet loss | <ul style="list-style-type: none"> • Less than 5% during peak period from ITXC reference gateway |
| Round trip latency | <p>Average phone to phone measurement over WWExchange:</p> <ul style="list-style-type: none"> • Recommended: < 400 ms • Maximum: 401 to 600 ms • Unacceptable: > 600 ms |
| PDD (post-dial delay) | <p>Less than 10 seconds from the last digit dialed to the first ringback</p> |
| Call completion | <p>Equal to, or better than, local PSTN call completion rates.</p> |

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| Support | 24 X 7 (for system outage) via pagers or 24-hour on-site support Problem resolution within two hours |
| Network monitoring | Provide ITXC access to: <ul style="list-style-type: none">• Monitor bandwidth, gateways, gatekeepers, hubs, and routers• Windows NT, VocalTec and Dialogic SNMP traps and other monitoring tools |
| Remote support | pcANYWHERE32 8.0 installed on each computer, to be enabled for testing or problem resolution when ITXC requests it |

VocalTec Ensemble Architecture (VEA) Termination Requirements

To provide high quality, reliable termination around the world, ITXC's Certified WWeXchange termination gateway operators maintain the minimum quality and capacity requirements listed below:

| | Single span gateway | Dual span gateway | >Dual span gateway |
|----------------------|---|--|--|
| CPU (not dual) | Pentium II 266 or higher (400 MHz recommended) | Pentium II 300 or higher (400 MHz recommended) | Pentium II 350 or higher (400 MHz recommended) |
| RAM | 256 MB or more | 256 MB or more | 256 MB or more |
| Hard Drive | 4.3 GB or more | 4.3 GB or more | 4.3 GB or more |
| Operating System | NT Server 4 w/Service Pack 3 | NT Server 4 w/Service Pack 3 | NT Server 4 w/Service Pack 3 |
| Max Analog ports | 16 | 32 | NA |
| Analog configuration | <ul style="list-style-type: none"> Qty (1) Dialogic D/160 Qty (1) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 full length ISA slot for Dialogic 1 full length PCI slot for AudioCodes | <ul style="list-style-type: none"> Qty (2) Dialogic D/160 Qty (1) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 full length ISA slot for Dialogic 1 full length PCI slot for AudioCodes | NA |
| Max T1 ports | 24 | 48 | 96 |
| T1 configuration | <ul style="list-style-type: none"> Qty (1) Dialogic D/240SC or D/480SC2-T1 Qty (1) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 full length ISA slot for Dialogic 1 full length PCI slot for AudioCodes | <ul style="list-style-type: none"> Qty (2) Dialogic D/240SC or Qty (1) D/480SC2-T1 Qty (2) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 or 2 full length ISA slots (depends on Dialogic choice) 2 full length PCI slot for AudioCodes | <ul style="list-style-type: none"> Qty (2) Dialogic D/480SC2-T1 Qty (3) AudioCodes TrunkPack VoIP 100/B SC Bus Version 2 full length ISA slots for Dialogic 3 full length PCI slots for AudioCodes |
| Max E1 ports | 30 | 60 | 120 |
| E1 configuration | <ul style="list-style-type: none"> Qty (1) Dialogic D/300SC or D/600SC2-E1 Qty (1) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 full length ISA slot for Dialogic 1 full length PCI slot for AudioCodes | <ul style="list-style-type: none"> Qty (2) Dialogic D/300SC or Qty (1) D/600SC2-E1 Qty (1) AudioCodes TrunkPack VoIP 100/B SC Bus Version 1 or 2 full length ISA slots (depends on Dialogic choice) 2 full length PCI slots for AudioCodes | <ul style="list-style-type: none"> Qty (2) Dialogic D/600SC2-E1 Qty (4) AudioCodes TrunkPack VoIP 100/B SC Bus Version 2 full length ISA slots for Dialogic 4 full length PCI slots for AudioCodes |

| Category | Requirements |
|-------------------------|---|
| Hardware | <ul style="list-style-type: none"> • Gateway - See preceding table • Uninterruptible power supply (UPS) with automatic, graceful shutdown software (in case of extended power outages) • 24 (or more) ports of Dialogic telephone network interface capacity Digital D/240SC-T1 or D/300SC-E1. • AudioCodes TrunkPack – VOIP/100B (SC Bus Version) VoIP Compression Board • Industrial-quality computer system for each Gatekeeper and Network Manager (if needed, see origination section for specs.) |
| Software | <ul style="list-style-type: none"> • VocalTec Ensemble Architecture Software Version 1.01 or higher • Windows NT Server version 4.0 with Service Pack 3 (Network Manager can use NT Workstation, if desired) • pcANYWHERE32 8.0 (available from www.symantec.com or www.warehouse.com) • VocalTec VEA, Dialogic and Windows NT SNMP MIBs |
| Gateway capacity | <ul style="list-style-type: none"> • 24 (or more) Universal ports upon deployment with WWExchange Service • Plans in place to install at least one additional 24-port gateway per location within 60 days of activation |
| IP bandwidth (capacity) | <ul style="list-style-type: none"> • T-1= 256 (or more) Kbps of dedicated bandwidth for the first 24 lines of termination, 10.6Kbps per line • 256 (or more) Kbps for each additional 24 lines of termination • E-1= 320 (or more) kbps of dedicated bandwidth for the first 30 lines of termination • 320 (or more) Kbps for each additional 30 lines of termination • The IP connection must be directly connected, or have a high quality connection, to a first tier regional Internet backbone |
| PSTN capacity | <ul style="list-style-type: none"> • 24 (or more) lines, preferably using a digital T-1 or E-1 connection • Plans in place to install at least 24 additional lines within 60 days of activation |
| Redundancy | <p>A second active gateway/gatekeeper or spare gateway/gatekeeper on site</p> <p>At least the following spare PC components on site:</p> <ul style="list-style-type: none"> • A replacement Dialogic telephone network interface card • A replacement AudioCodes VoIP Compression Card • PC power supply, motherboard, RAM, hard drive, fan |
| Voice quality | Comparable to ITXC reference gateway |
| Packet loss | Less than 5% during peak period from ITXC reference gateway |
| Round trip latency | <p>Average phone to phone measurement over WWExchange:</p> <ul style="list-style-type: none"> • recommended: < 400 ms • maximum: 401 to 600 ms • unacceptable: > 600 ms |
| Call completion | Equal to, or better than, local PSTN call completion rates. |
| Support | <p>24 X 7 (for system outage) via pagers or 24-hour on-site support</p> <p>Problem resolution within two hours</p> |

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|--------------------|---|
| Network monitoring | Provide ITXC access to: <ul style="list-style-type: none">• monitor bandwidth, gateways, gatekeepers, hubs, and routers• Windows NT, VocalTec and Dialogic SNMP traps and other monitoring tools |
| Remote support | pcANYWHERE32 8.0 installed and running on gateway |