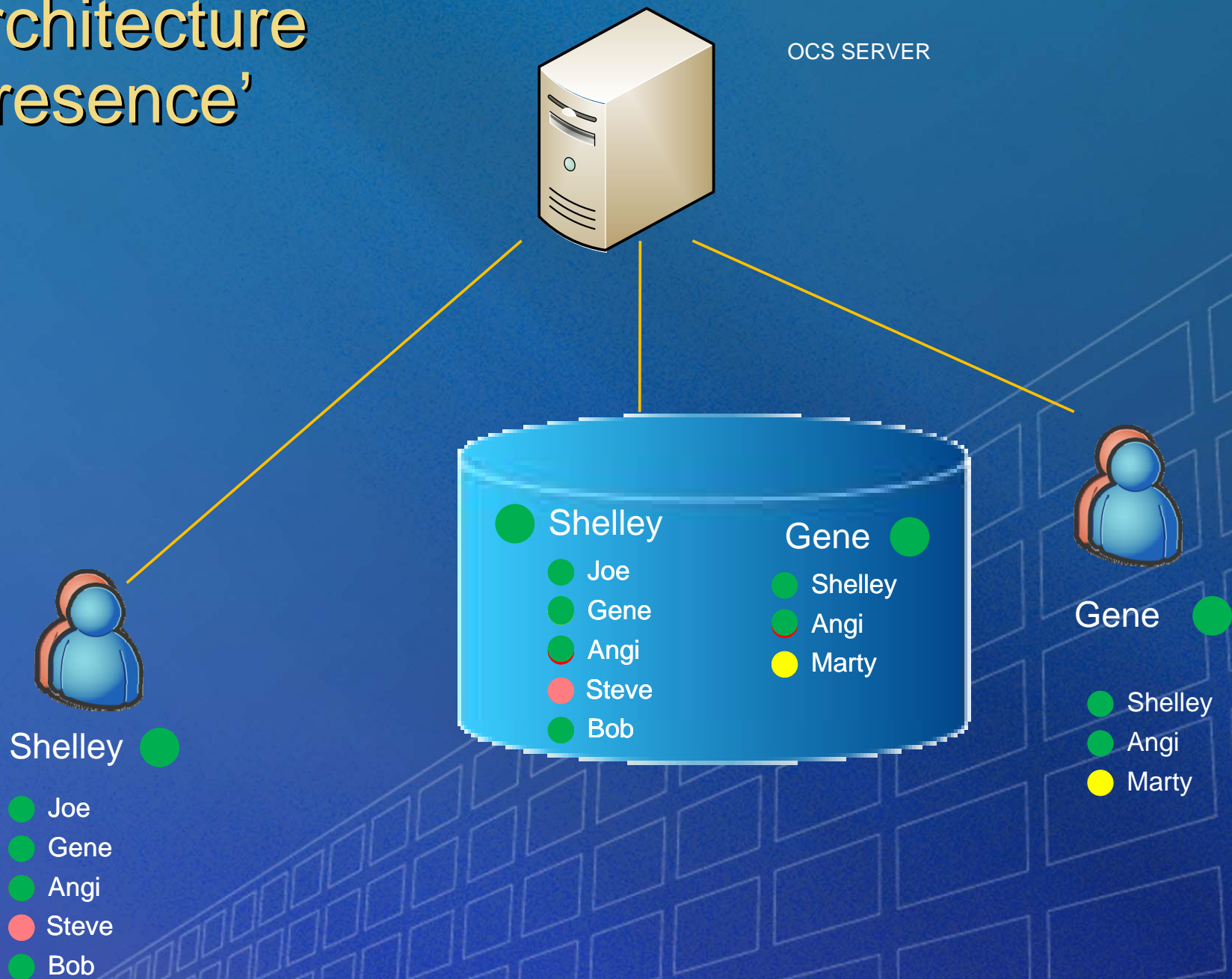


OCS Architecture

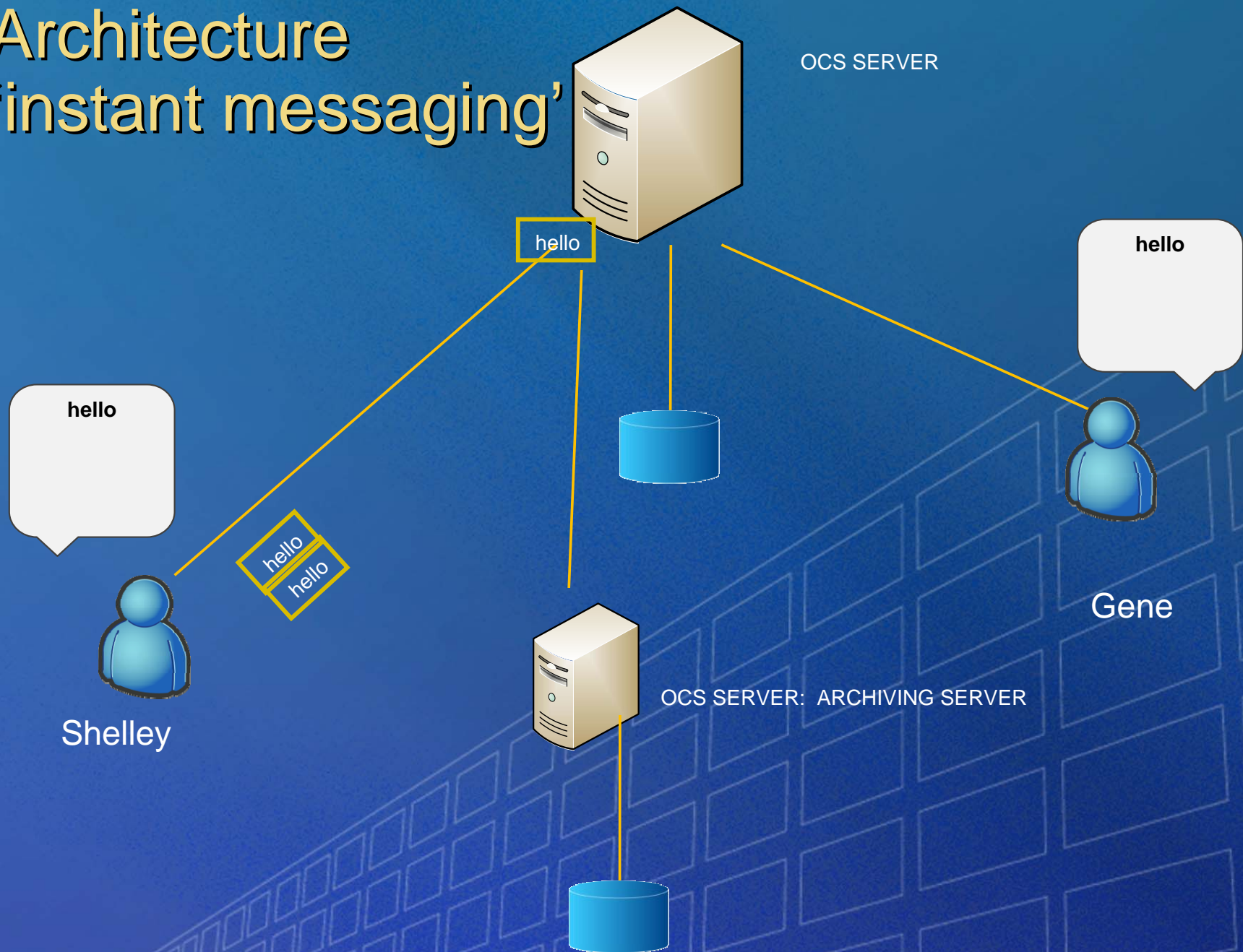
Communications Today



Architecture 'presence'



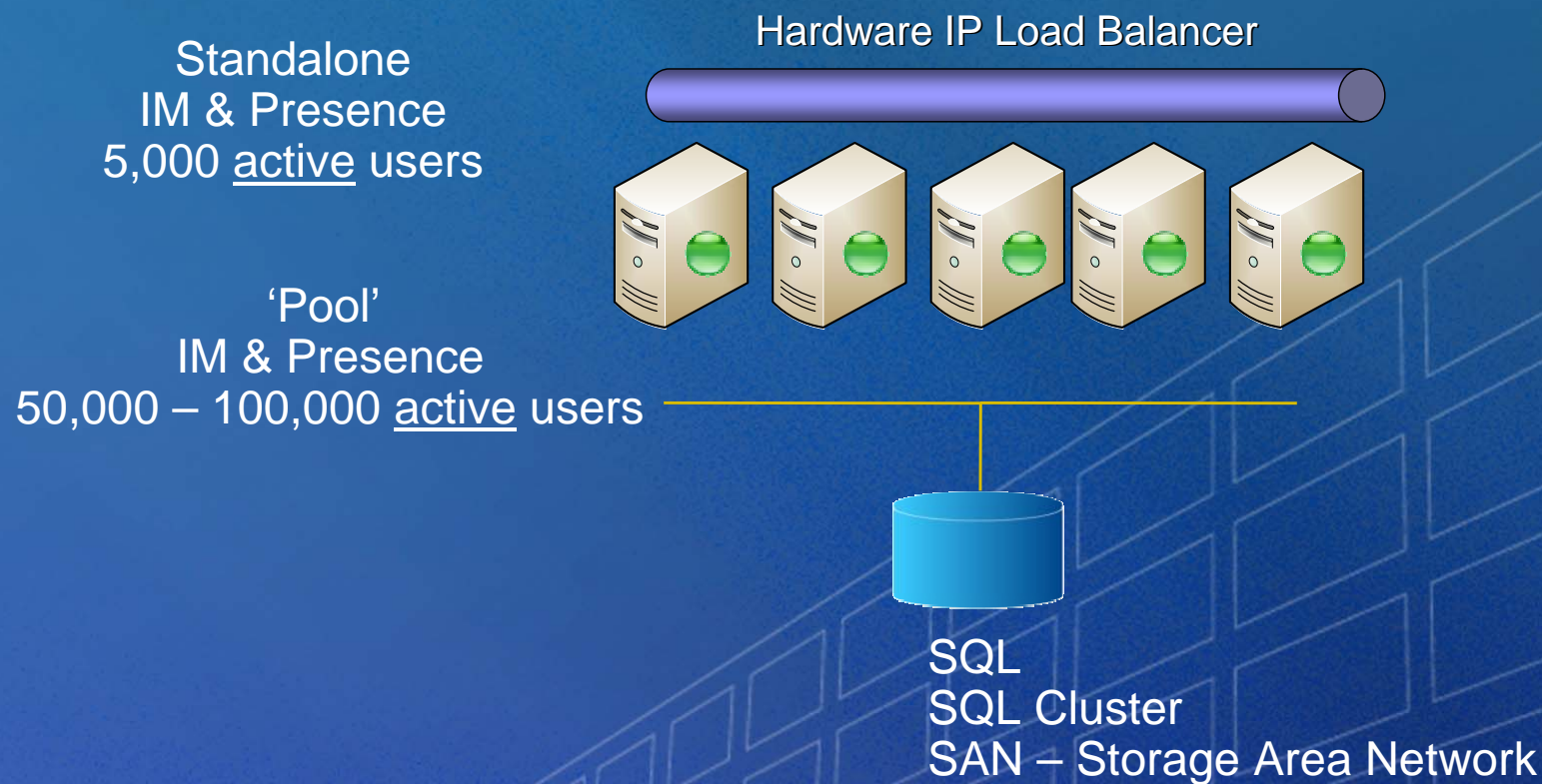
Architecture 'instant messaging'



Q. How much bandwidth?

- A. It's variable.
 - Things that affect bandwidth
 - Number of contacts
 - Presence changes every hour
 - Quantity of IM's
 - Quantity of messages per IM session
 - At Microsoft IM and Presence take up approximately 1.8 kbps per user over the course of a working day.
 - Stress test tool in the Resource Kit

Architecture – standalone vs. enterprise pool



Architecture – global enterprise



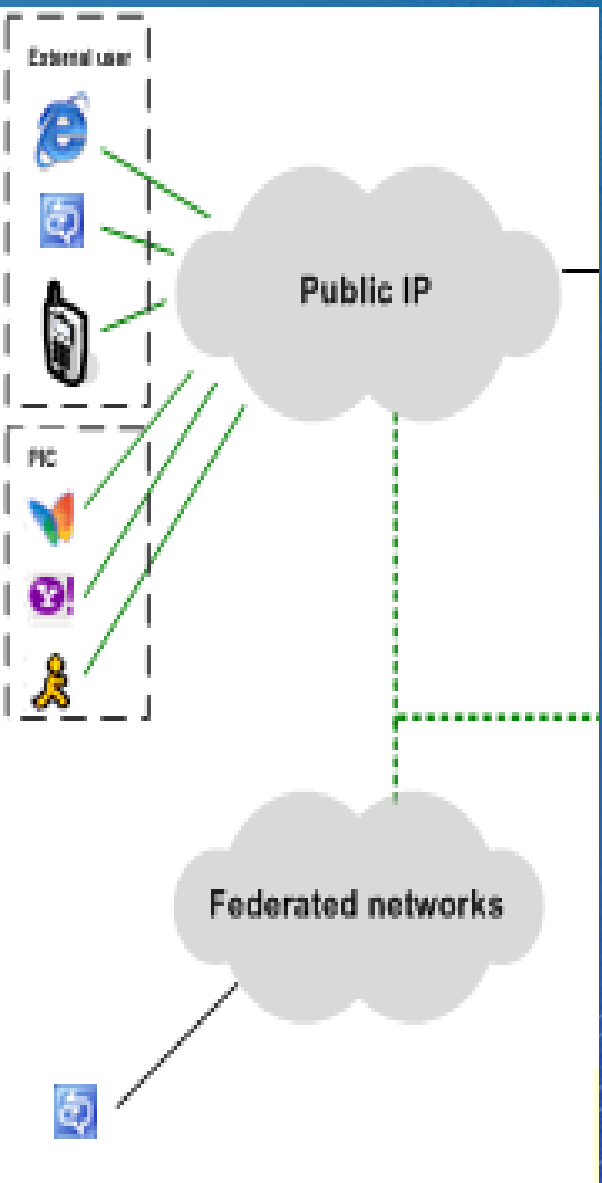
The Director Server

Authenticates user with Active Directory

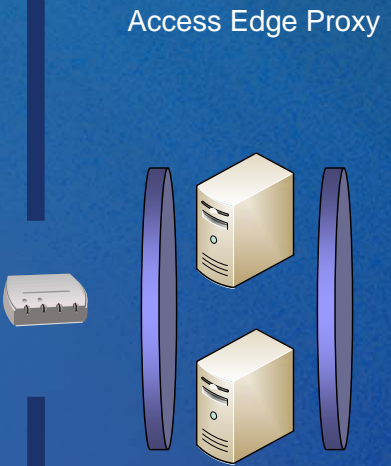
Directs user to correct pool



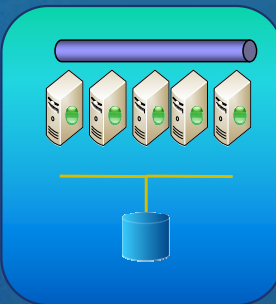
Internet



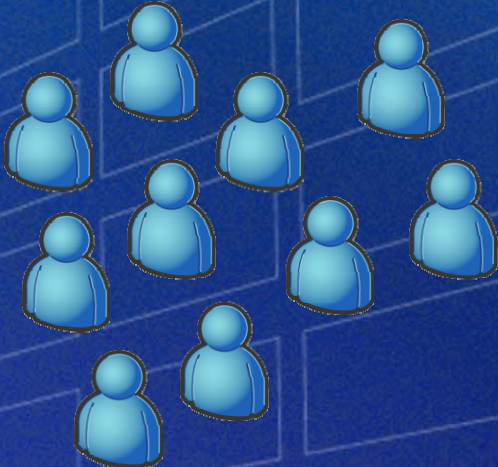
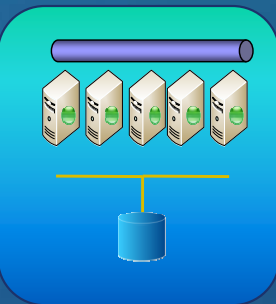
DMZ



Pool 1

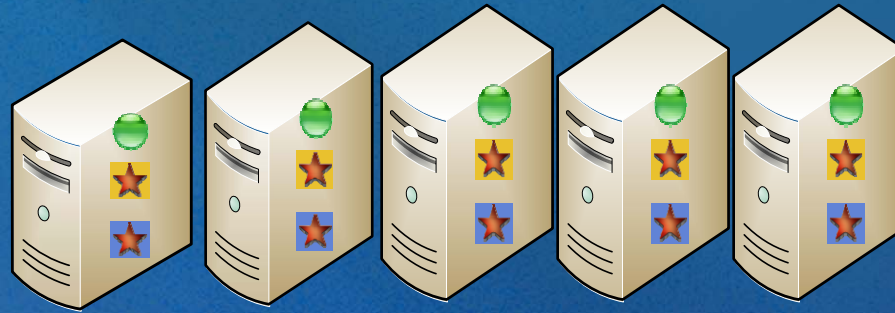


Pool 2

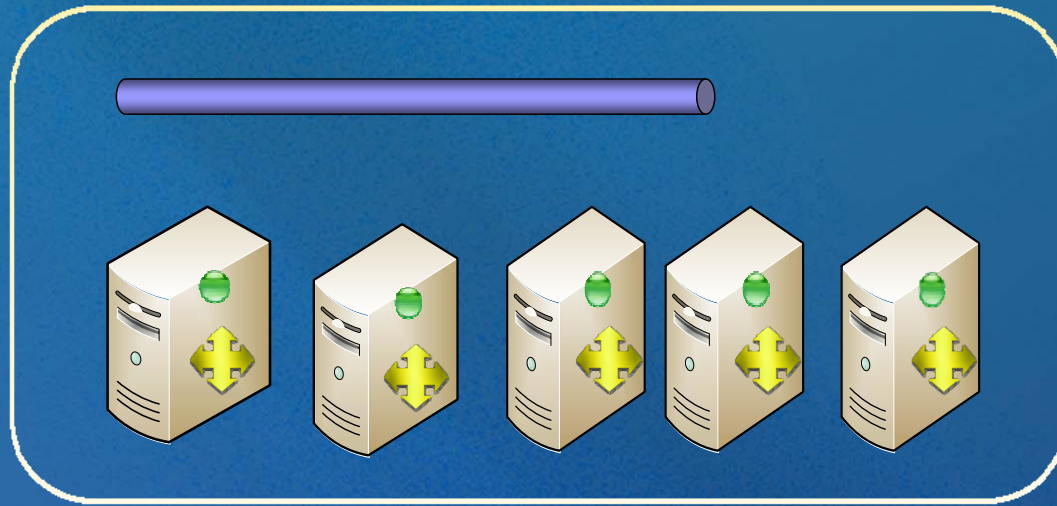


Audio/Video & Web Conferencing

Hardware IP Load Balancer



'Pool'
IM & Presence
Audio/Video & Web Conferencing
30,000 active users

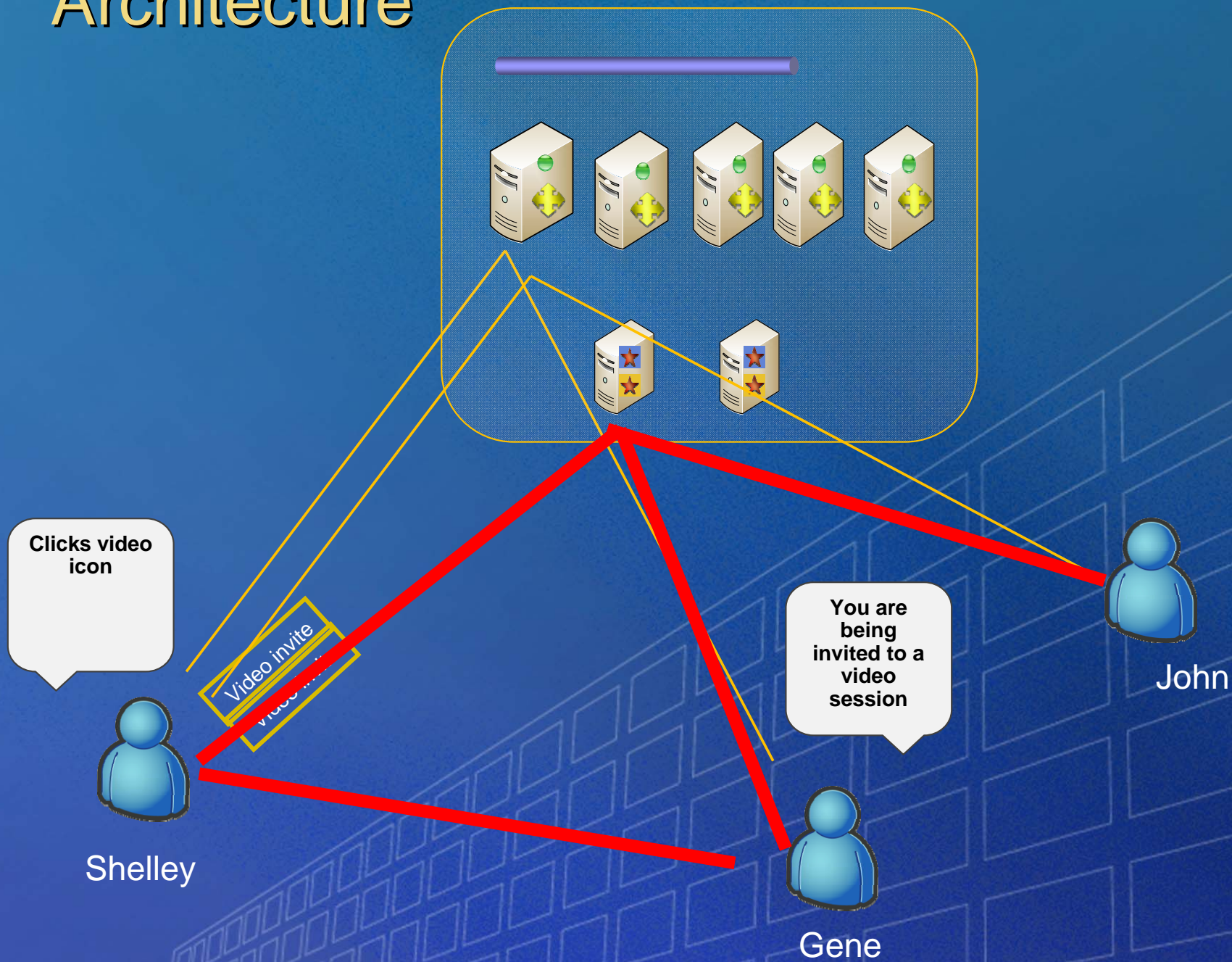


'Pool'
IM & Presence
50,000 – 100,000 active users

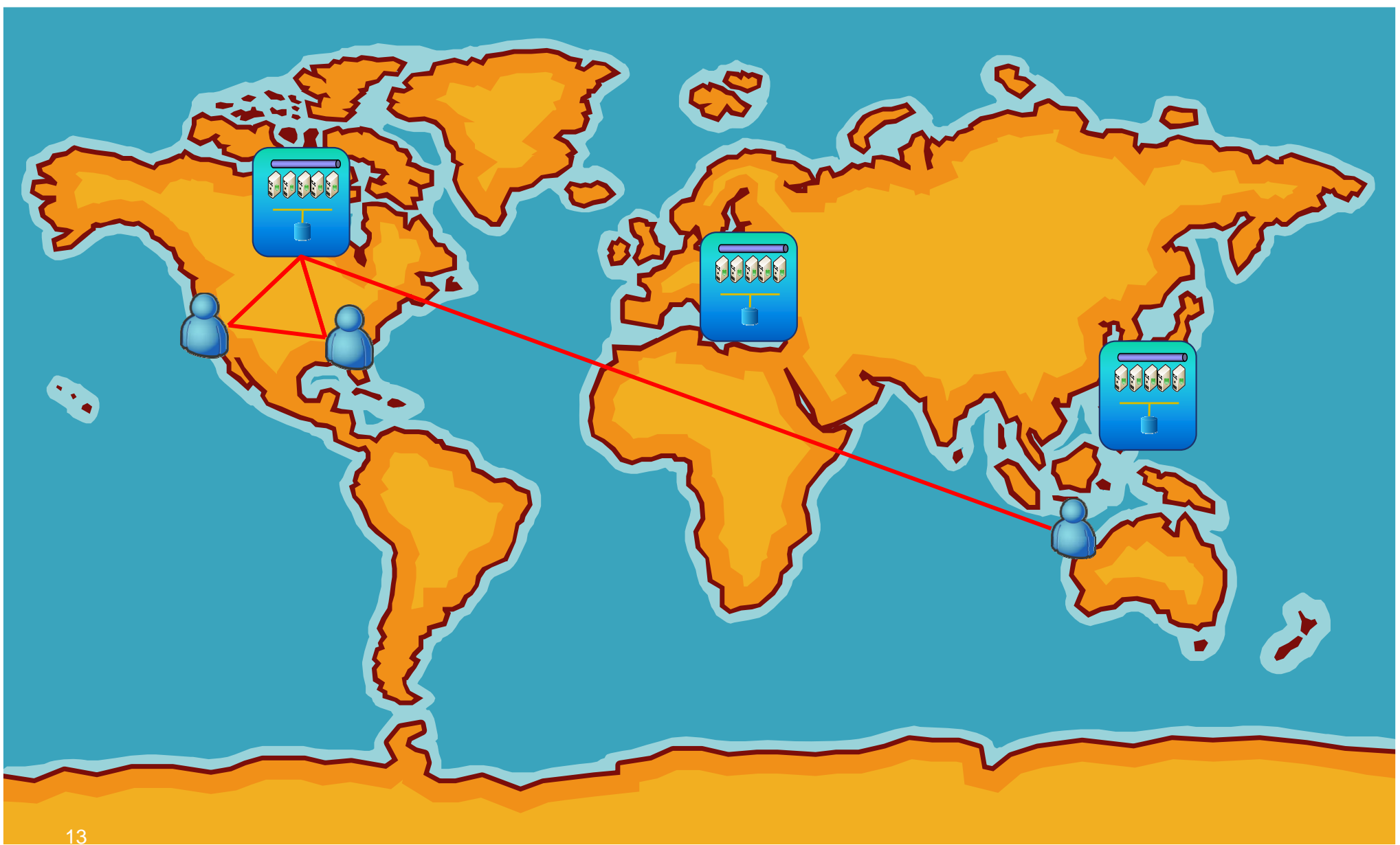


'Pool'
Audio/Video & Web Conferencing
1,250 connections per server
250 connections per 'meeting'
10 presenter per meeting

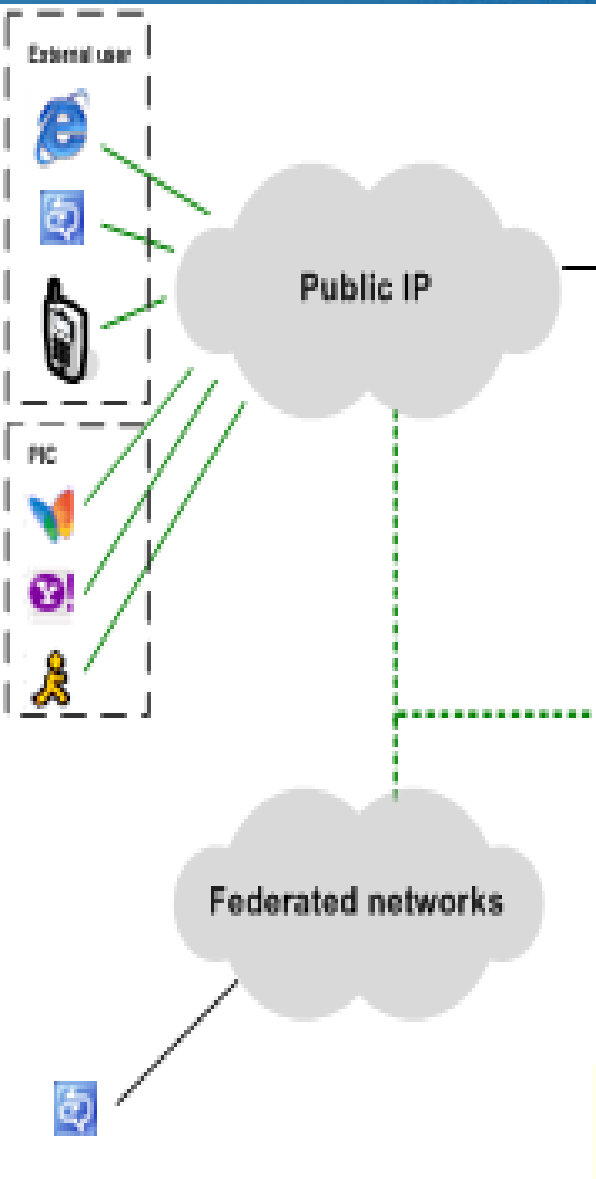
Architecture



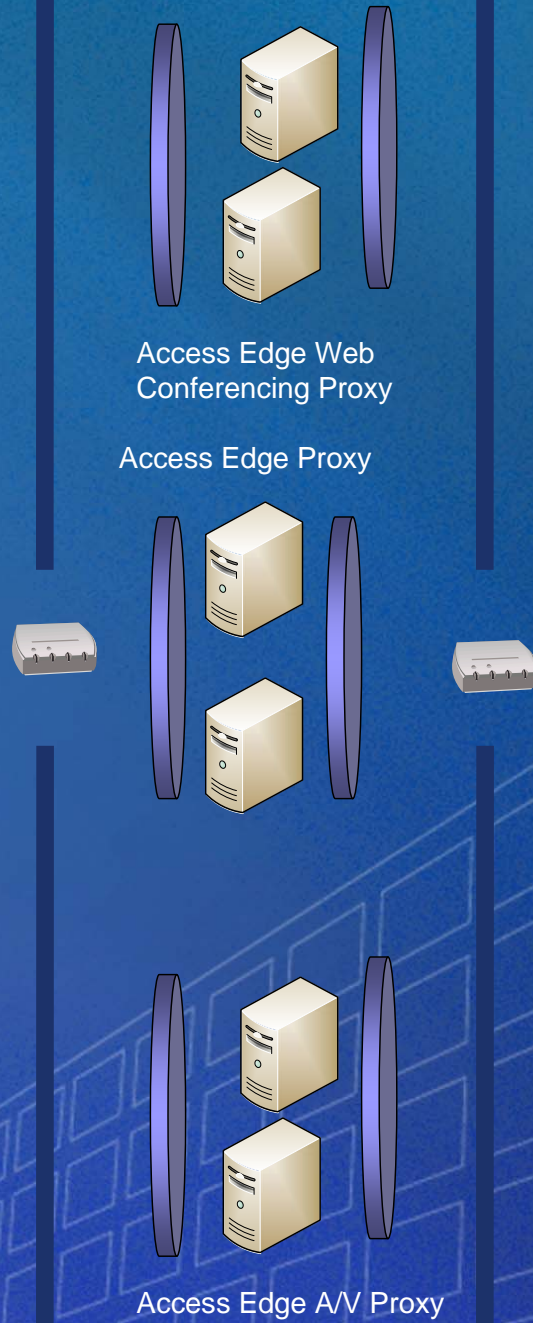
Architecture – global enterprise



Internet

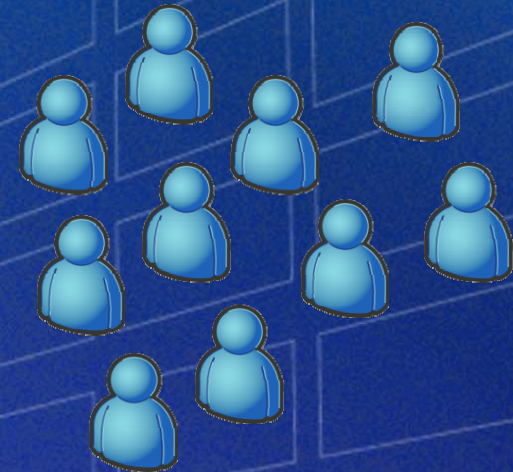
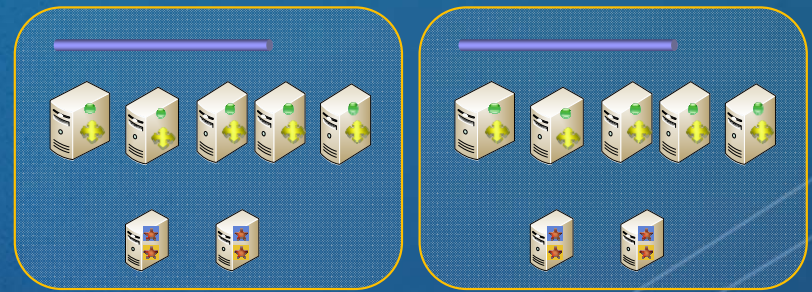


DMZ



Pool 1

Pool 2

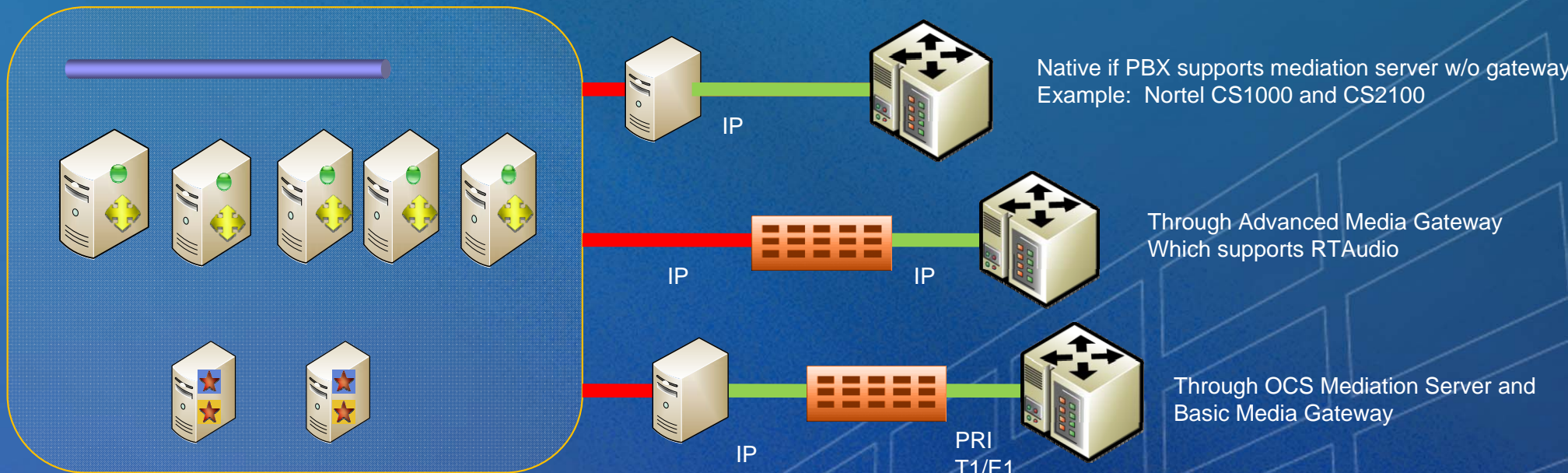


Q. How much bandwidth?

- Video:
 - Variable, but plan for 300k max per stream
 - SMPTE VC-1 compliant codec called RT Video
 - RT Video is enhanced to scale down bandwidth based on network performance
- Audio:
 - Variable, but plan for 45k-50k max per stream
 - RT Audio codec
 - RT Audio is enhanced to scale down bandwidth based on network performance
- Web:
 - 3-6kbs generally doing PPT push
 - 12-50kbs generally using application sharing

Note: we are not integrating with 'legacy' audio/video conferencing systems using H323, ISDN, etc. natively. This will be done via gateways from 3rd party vendors.

PBX Integration – supported VOIP scenarios



RT Audio

G.711

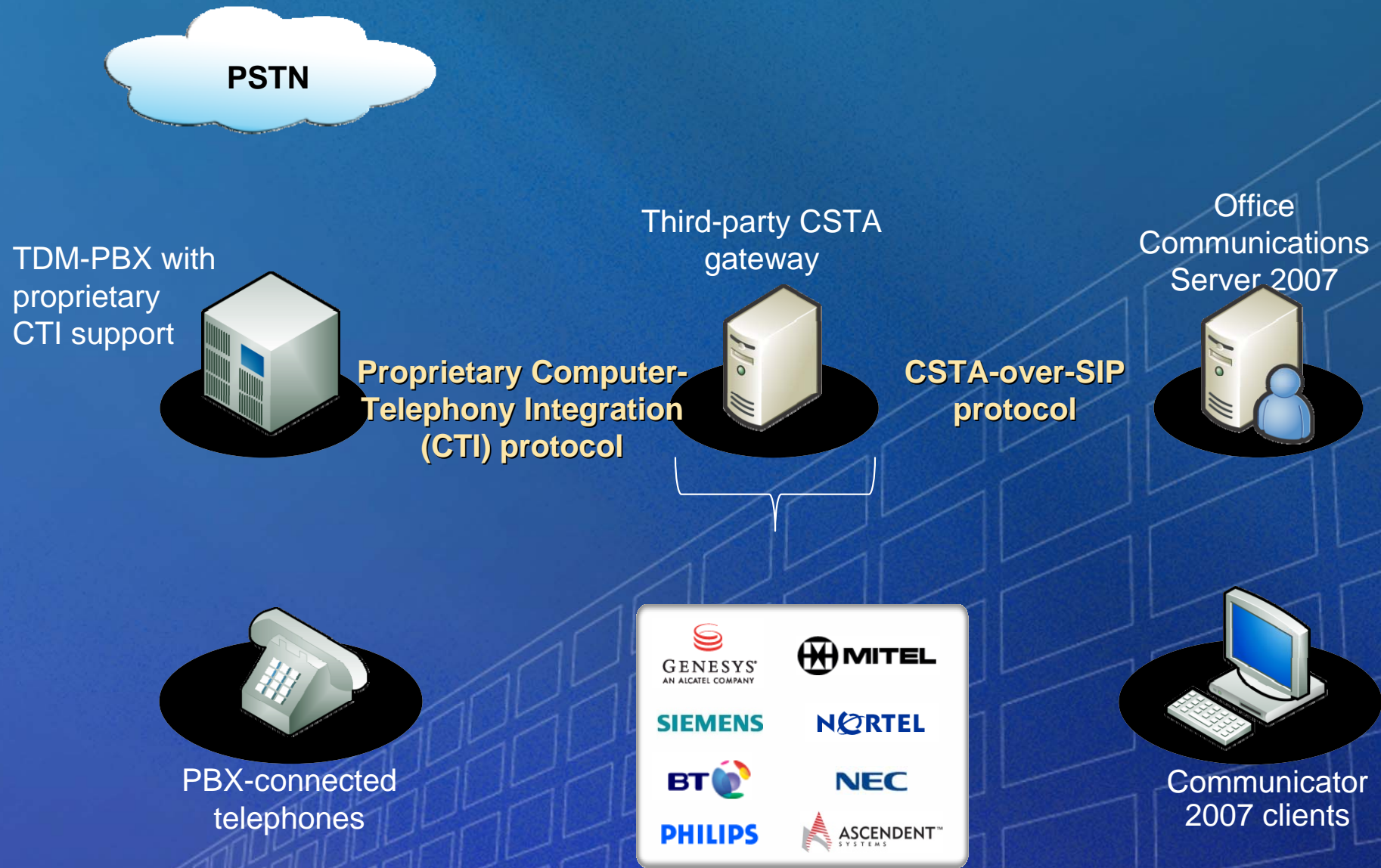
Media Gateway Examples:

Dialogic

Quintum

AudioCodes

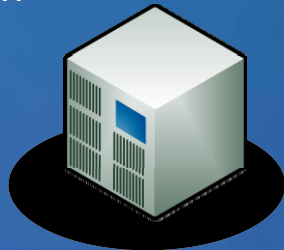
PBX Integration – supported RCC scenarios via gateways



PBX Integration – supported direct RCC connection



IP-PBX with
CSTA/SIP
support



**CSTA-over-SIP
protocol**

Office Communications
Server 2007



Examples of PBX with CSTA Support

Nortel CS1000

Nortel CS 2100

Cisco CM 6.x and CUPS

Avaya CM with AES



PBX-connected
telephones



Communicator
2007 clients

Architecture



Architecture – global enterprise

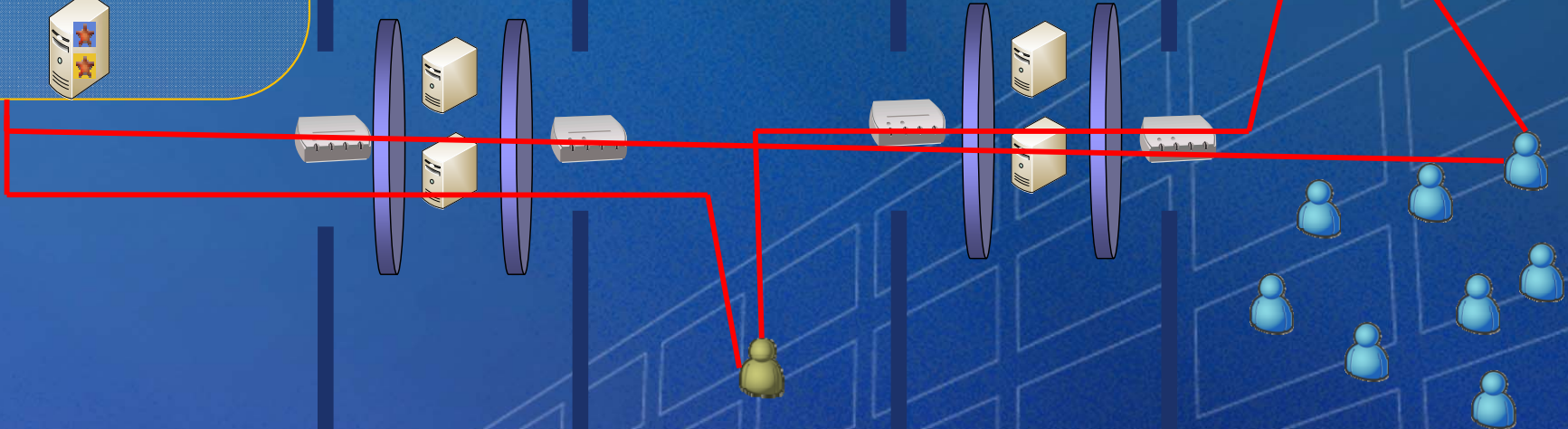
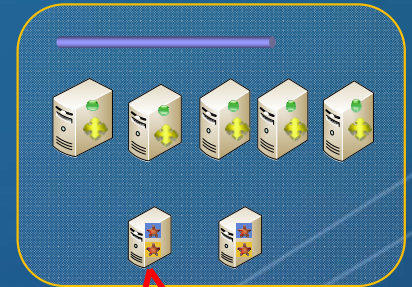


Live Meeting Data Center

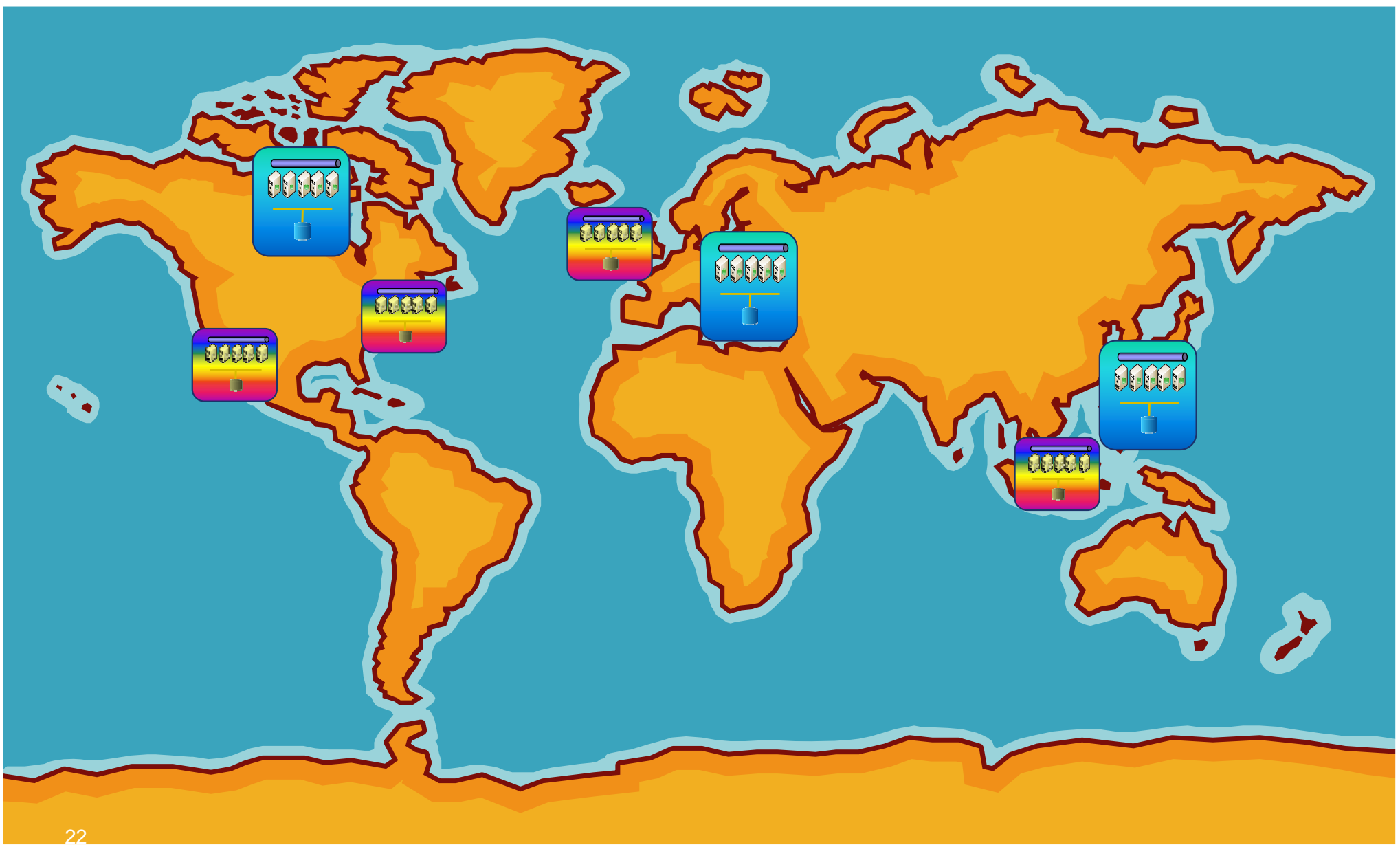
DMZ

DMZ

Internet



Architecture – global enterprise



The image features a solid blue background with a faint, white grid pattern of squares that recedes into the distance from the bottom left towards the top right. Centered in the upper half of the image is the Microsoft logo in a bold, white, sans-serif font. Below the logo is the slogan "Your potential. Our passion." in a white, italicized, sans-serif font.

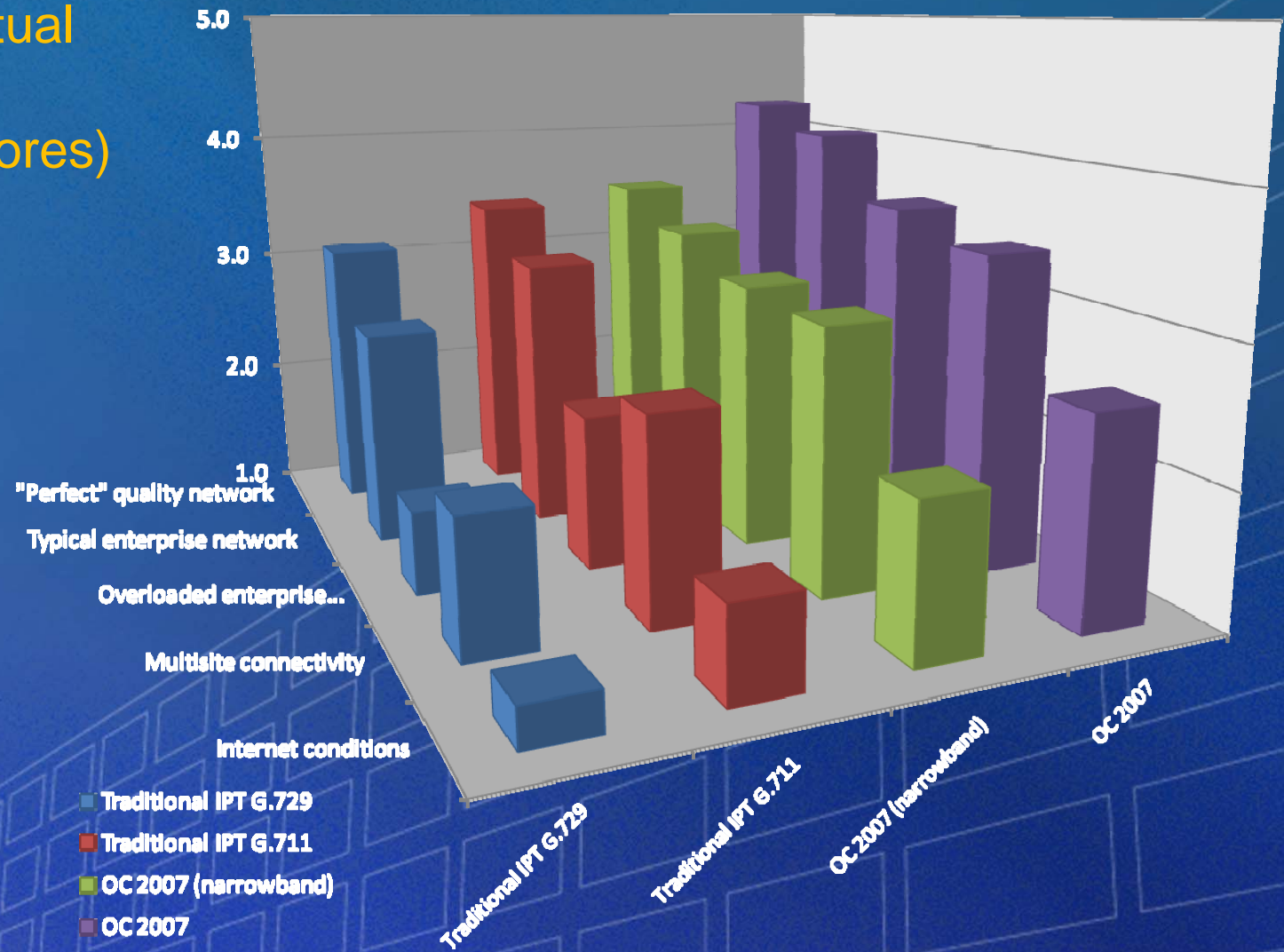
Microsoft[®]

Your potential. Our passion.[™]

Appendix D3

Evidence of the superior VoIP Quality of Experience

Subjective perceptual experience
(Mean Opinion Scores)



Source: benchmarking study performed by Psytechnics Ltd in December 2006