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Lync Audio, Video, and Web Conferencing

UNC 225

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Microsoft Corporation



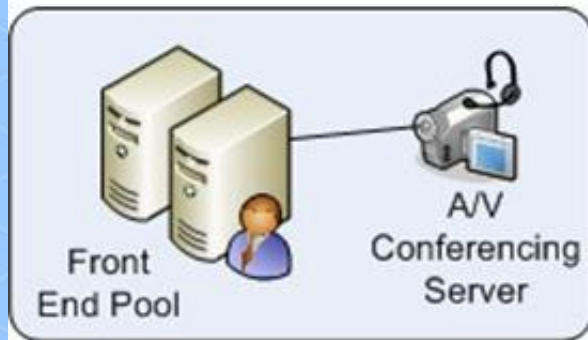
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Conferencing Architecture

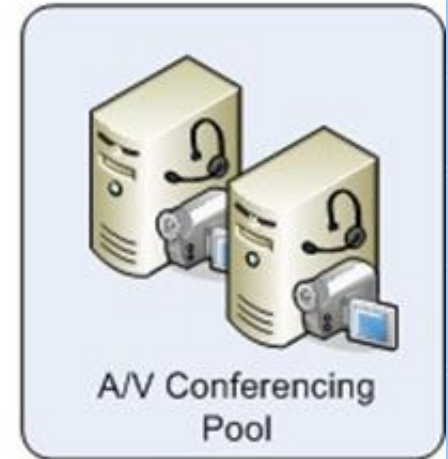
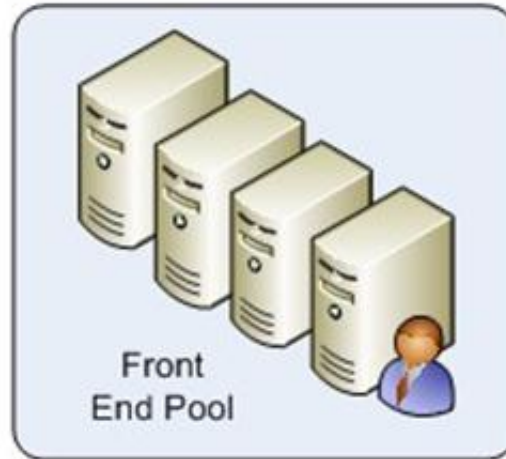
Architecture



Recommended Topologies for A/V Conferencing



Recommended topology for less than 10,000 users; A/V Conferencing Server is collocated on the Front End Pool.



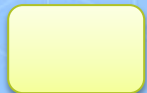
Recommended topology for more than 10,000 users. A/V Conferencing Service runs on a separate pool, with one A/V Conferencing Server for each 35,000 users at the site.

Hardware Requirements for Front End Servers and A/V Conferencing Servers

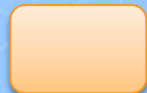
| Hardware component | Minimum requirement |
|--------------------|---|
| CPU | <ul style="list-style-type: none">• Dual processor, quad-core 2.0 gigahertz (GHz)+• 4-way processor, dual-core 2.0 GHz+ |
| Memory | 12 gigabytes (GB) |
| Disk | <ul style="list-style-type: none">• 10K RPM hard disk drive (HDD) (multiple spindles recommended)• High-performance solid state drive (SSD) with performance equal to or better than 10K RPM HDD |
| Network | <ul style="list-style-type: none">• Dual 1 gigabit per second (Gbps) network adapters (recommended)• Single 1 gigabit per second (Gbps) network adapter (supported) |

Web Conferencing Architecture

Front End Server



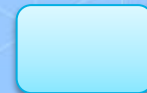
Machine Boundary



Process Boundary



Web Application



Audio Conferencing

Web Conferencing Architecture

Front End Server

AV Conferencing Server

AV MCU

Machine Boundary

Process Boundary

Web Application

Audio Conferencing

Web Conferencing Architecture

Front End Server

AV Conferencing Server

AV MCU

Backend SQL DB Server

**Conferencing
Database**

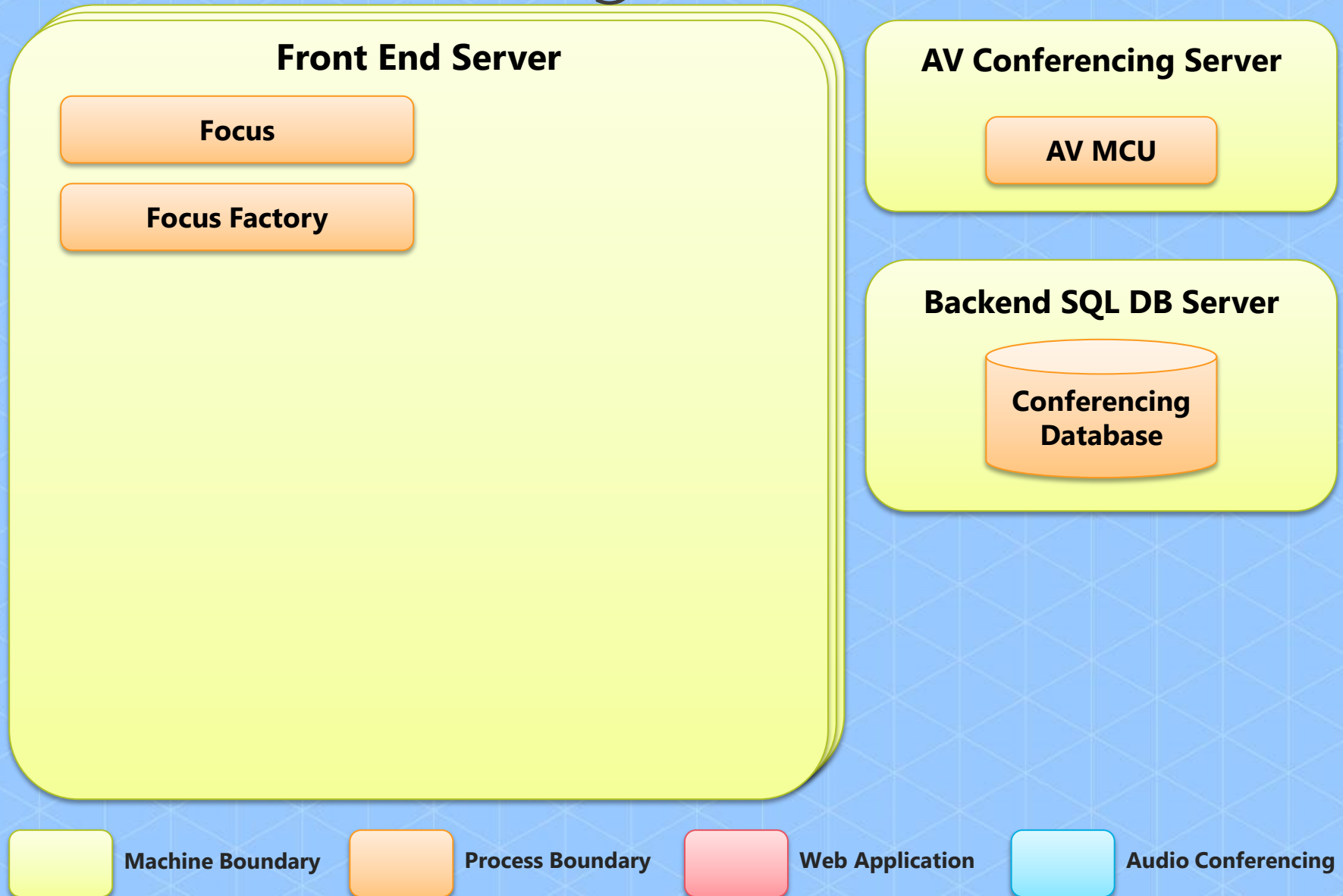
Machine Boundary

Process Boundary

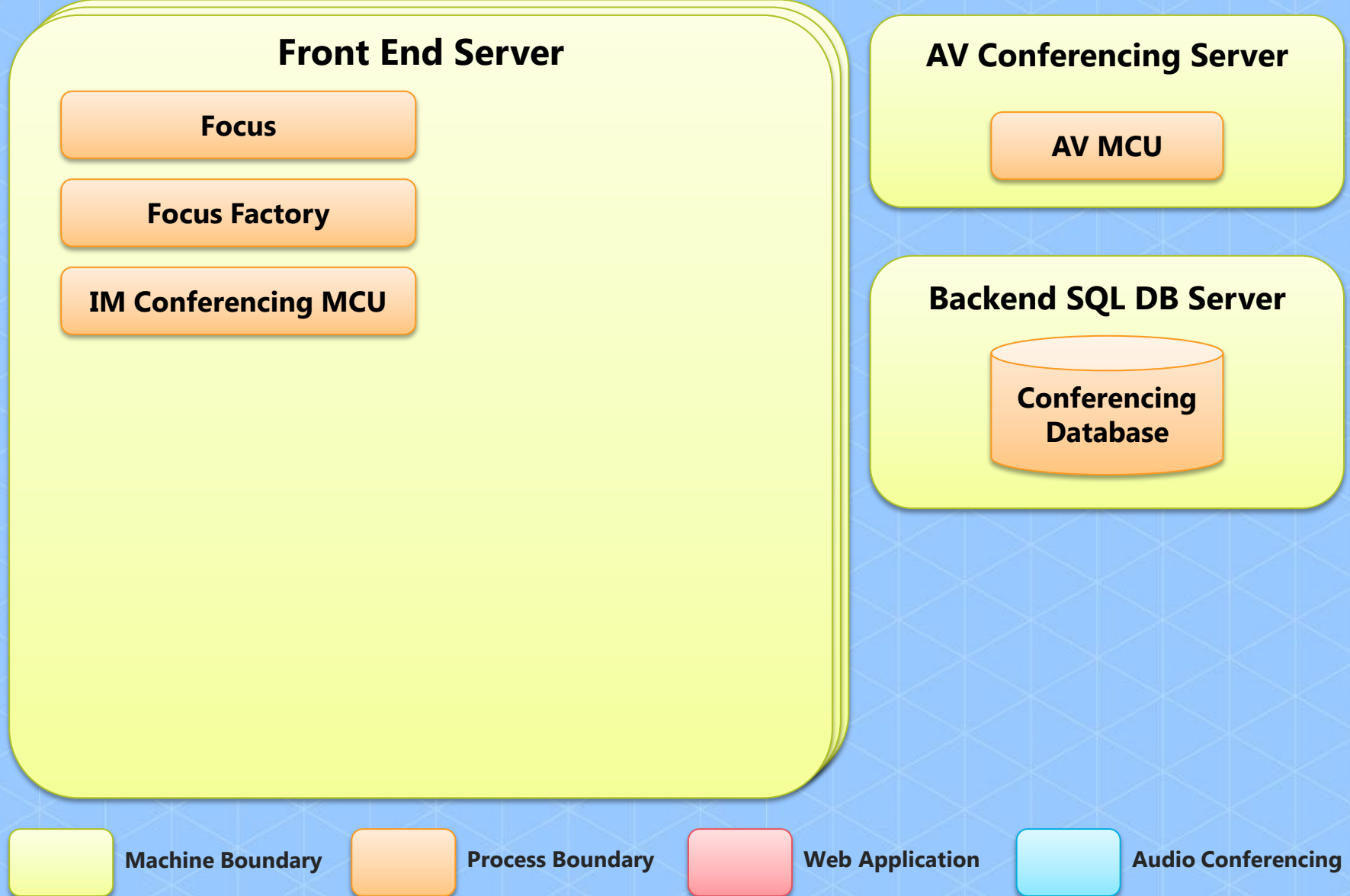
Web Application

Audio Conferencing

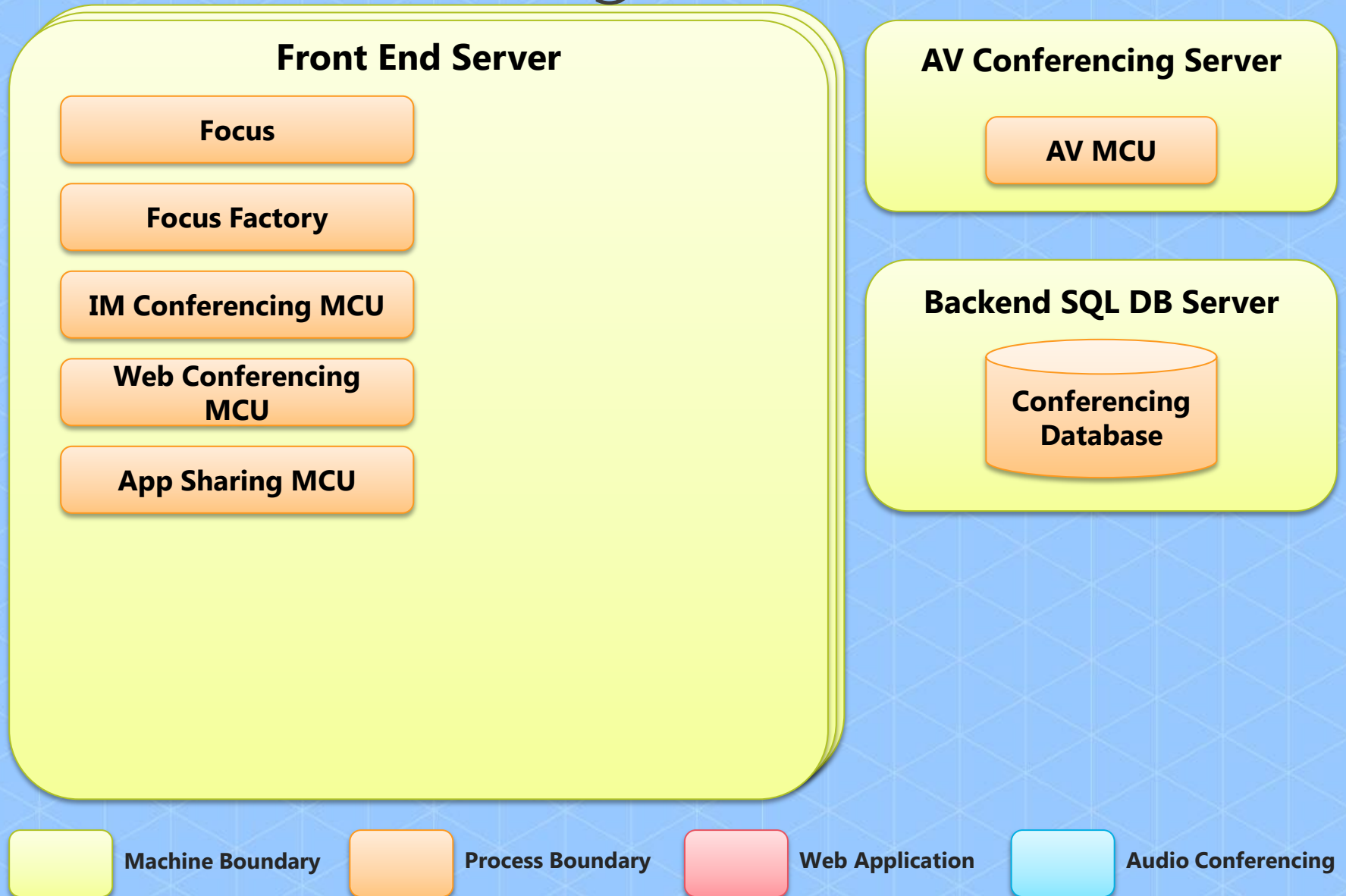
Web Conferencing Architecture



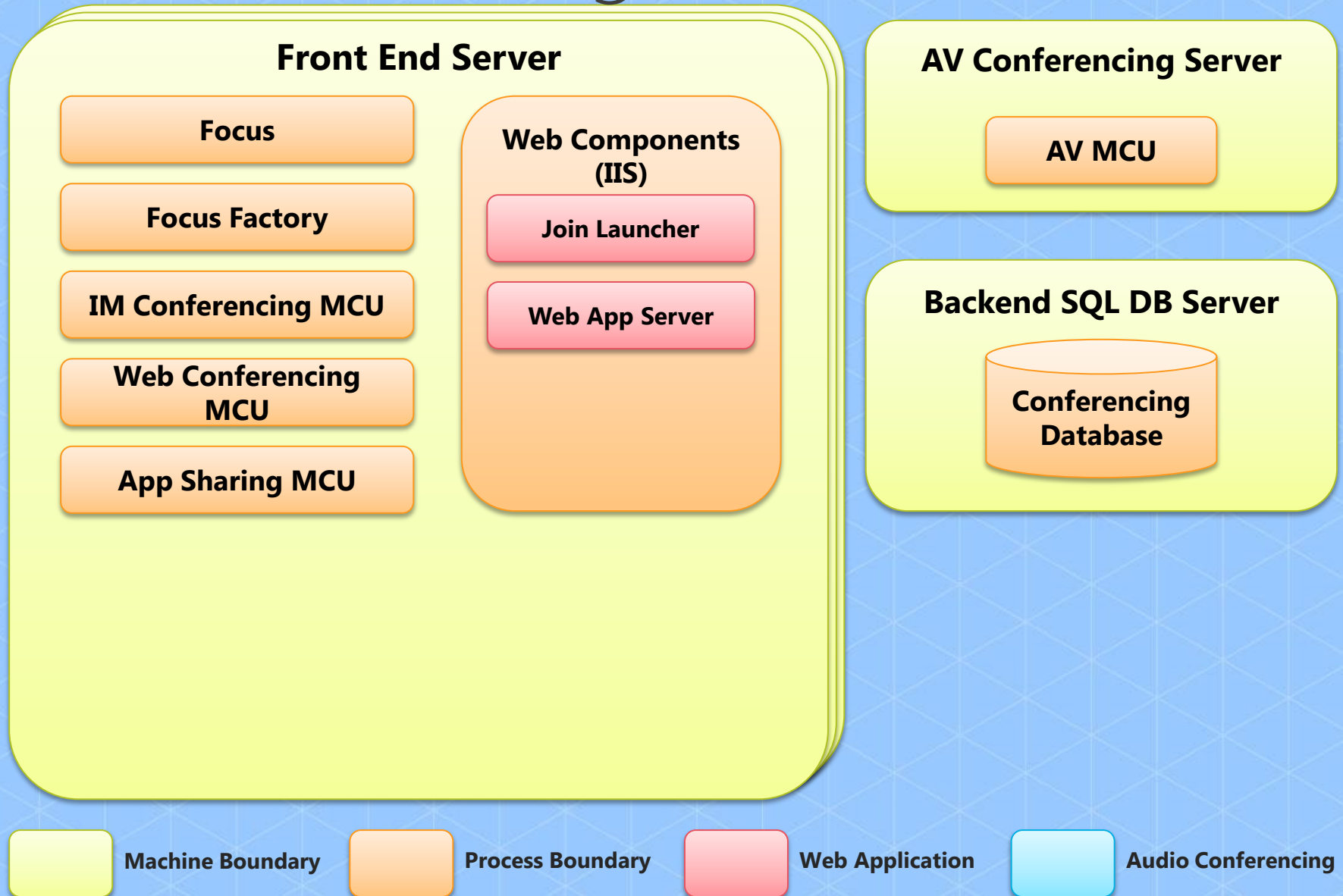
Web Conferencing Architecture



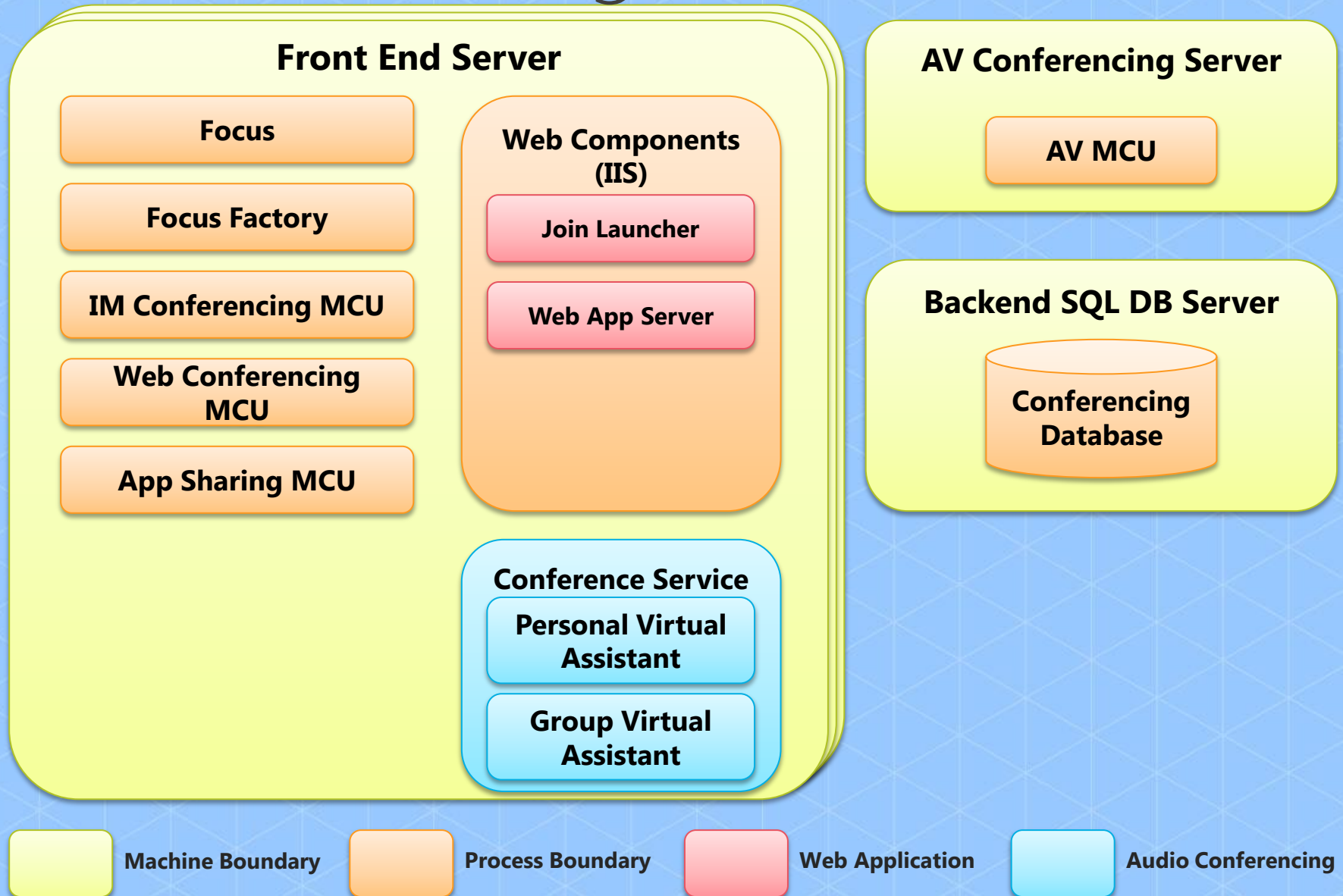
Web Conferencing Architecture



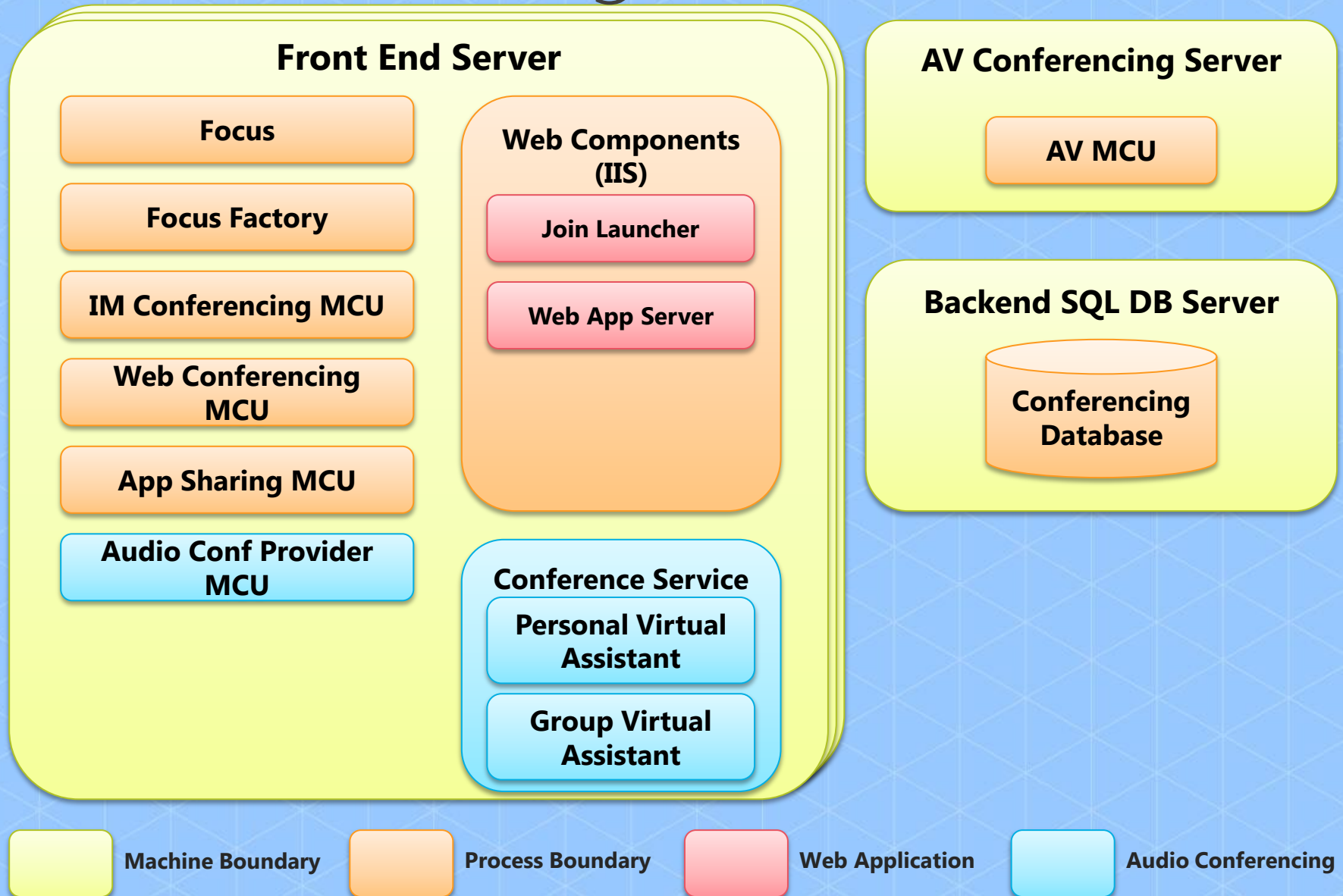
Web Conferencing Architecture



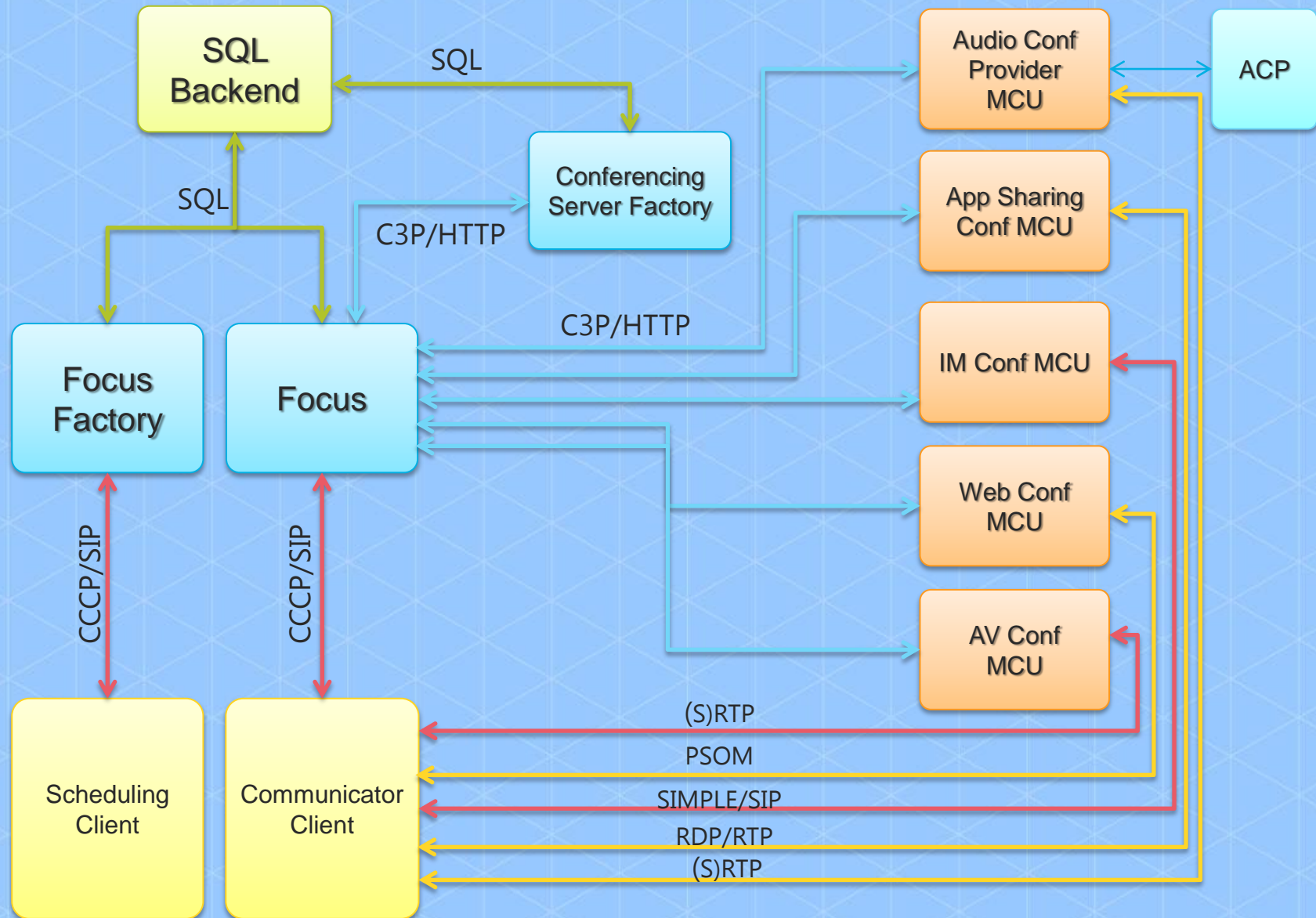
Web Conferencing Architecture



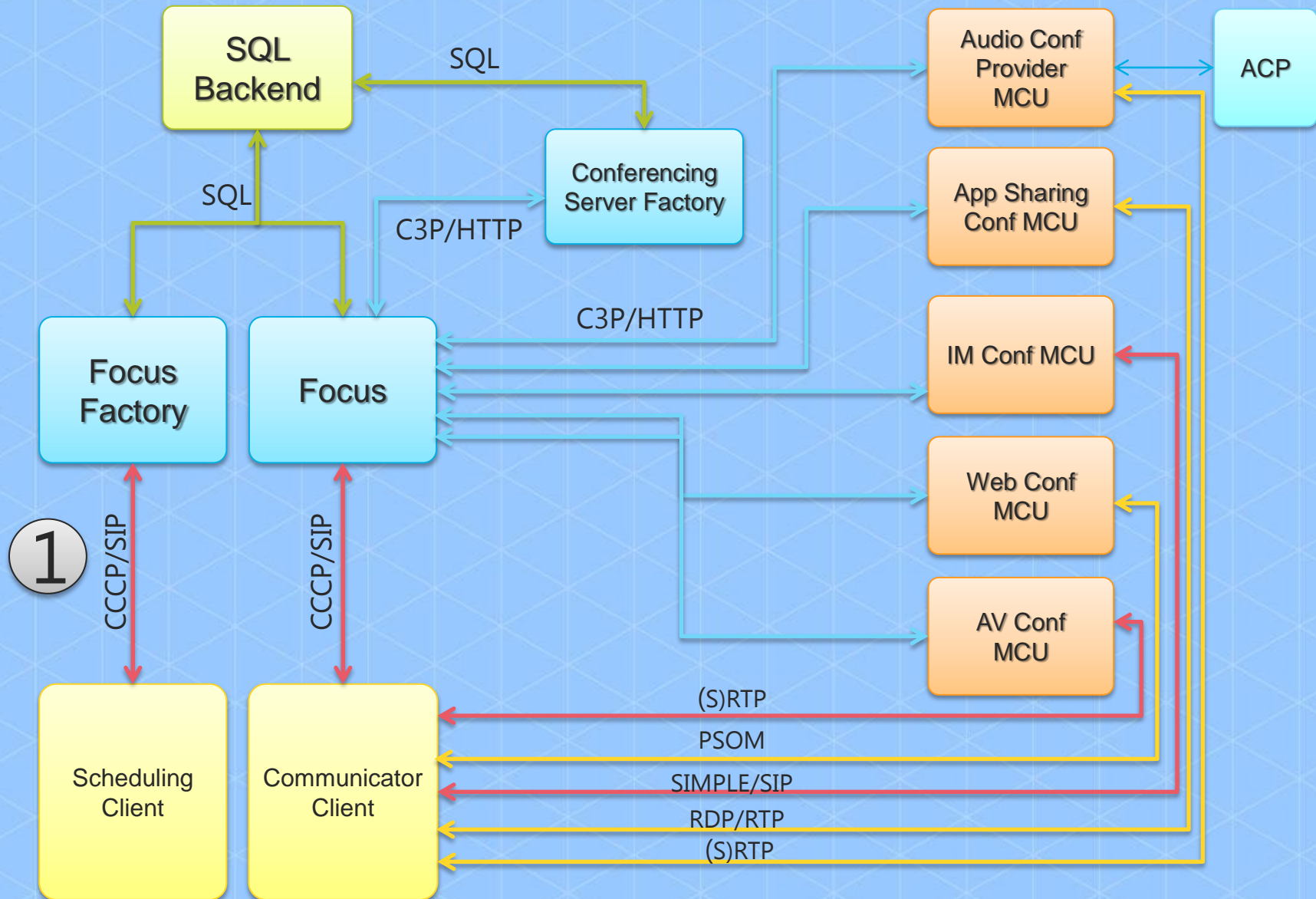
Web Conferencing Architecture



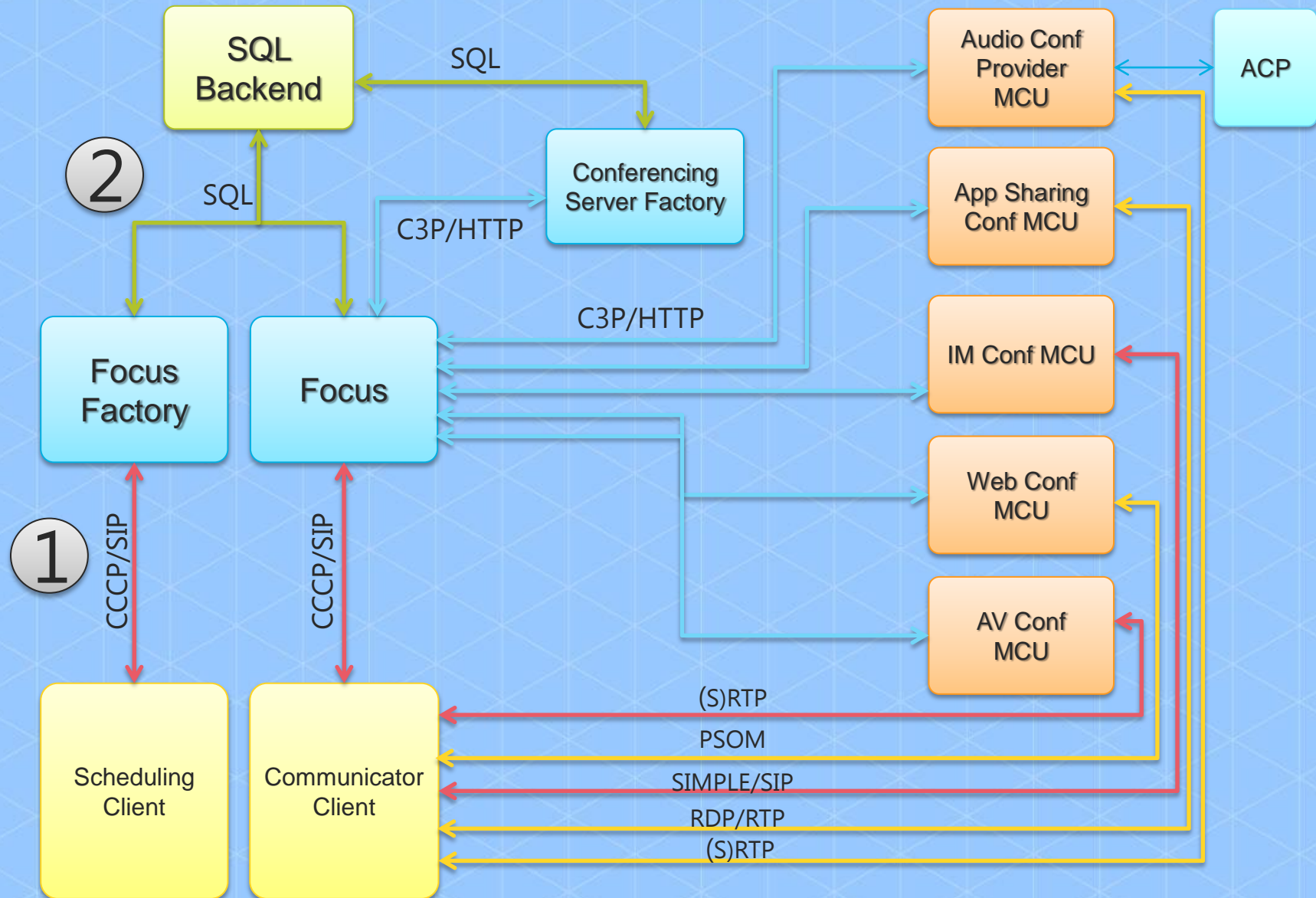
Web Conferencing Flow



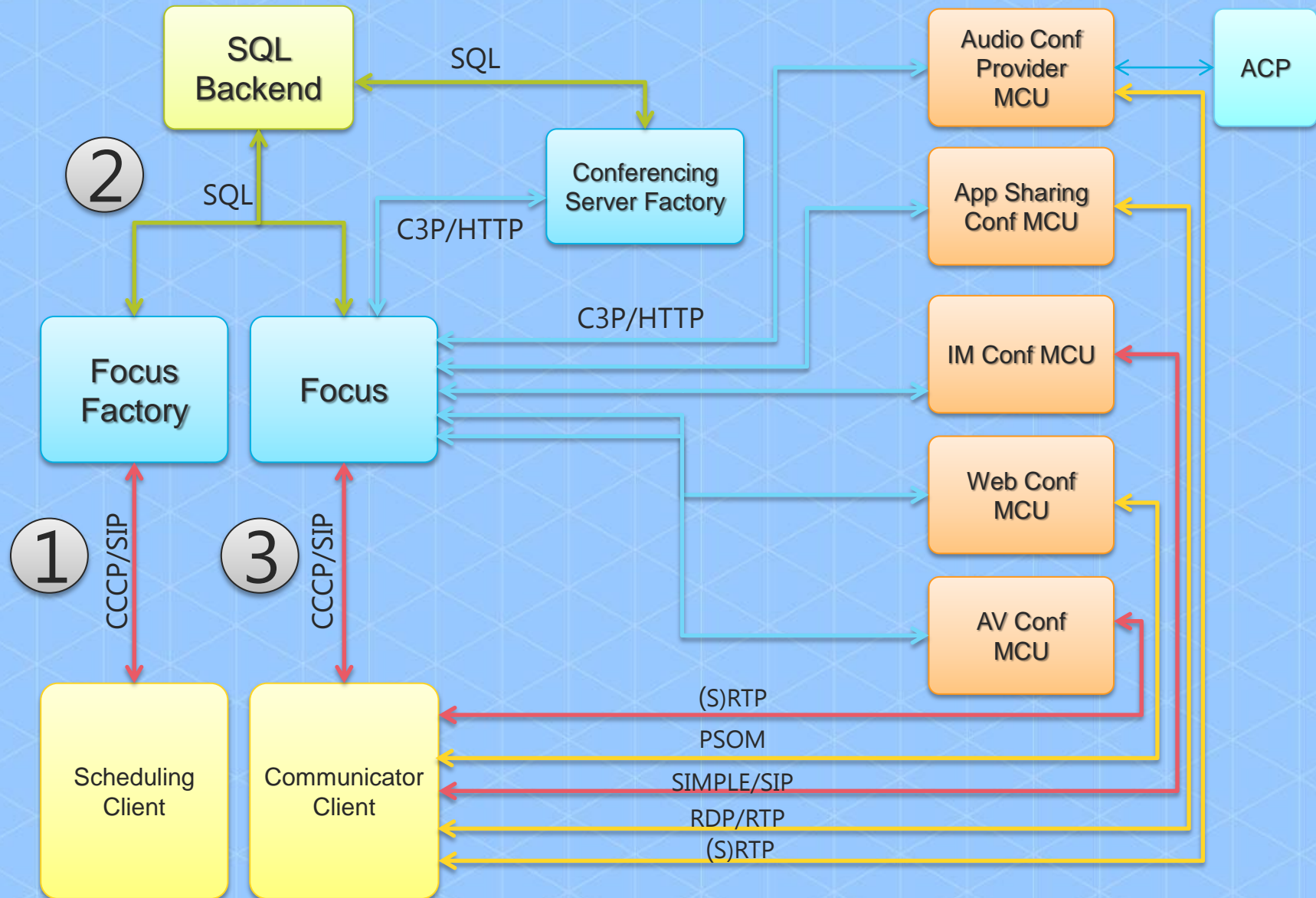
Web Conferencing Flow



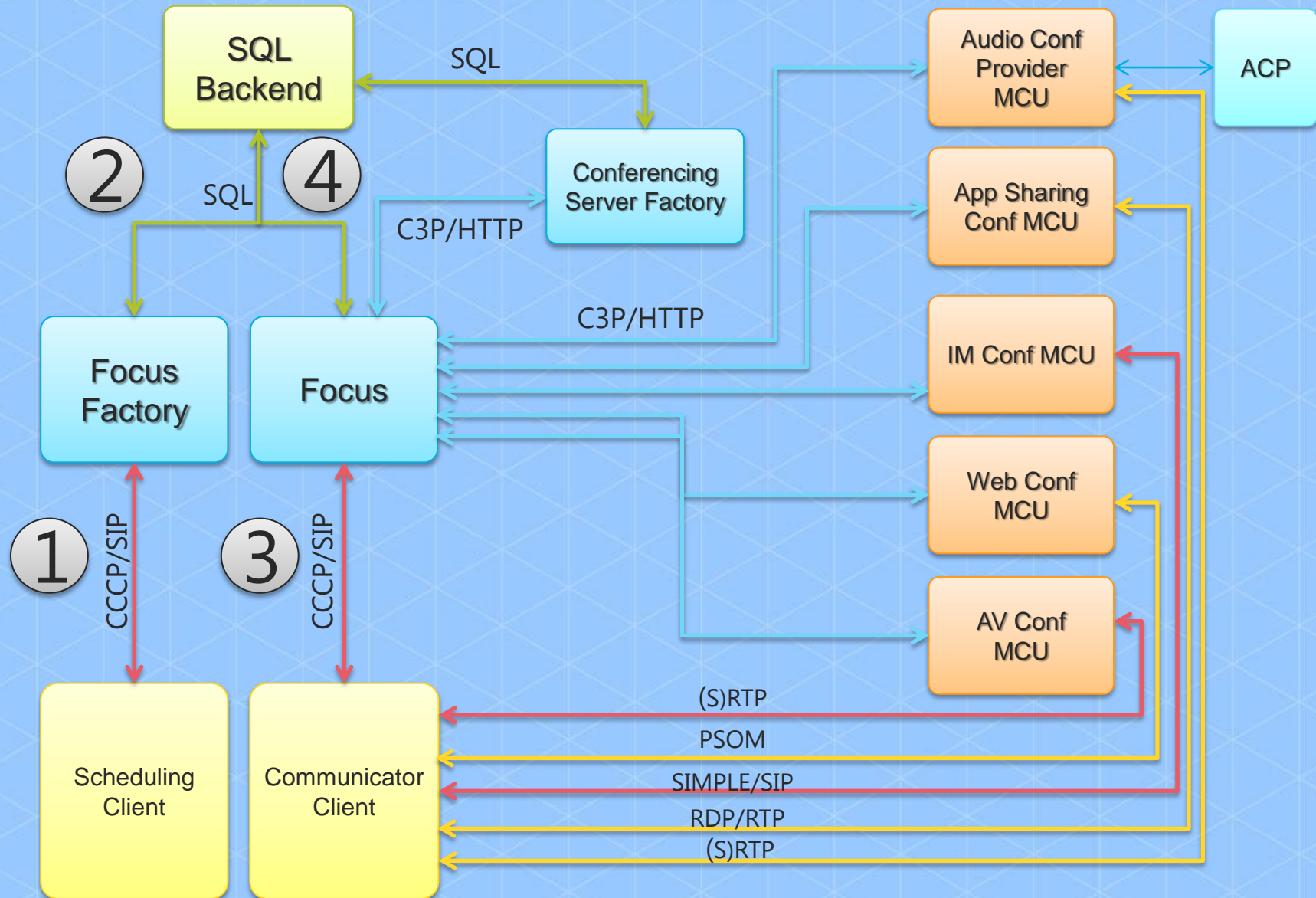
Web Conferencing Flow



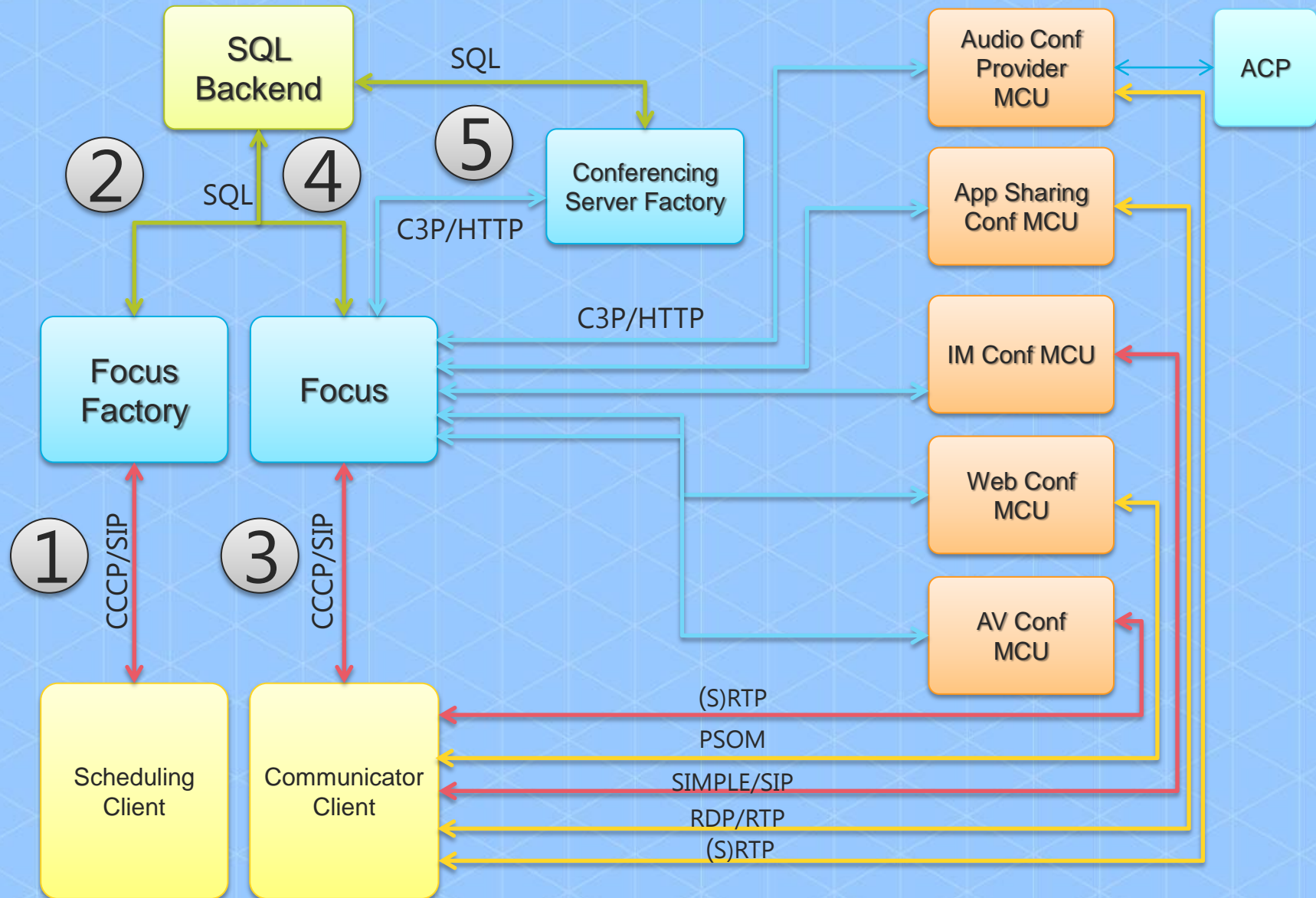
Web Conferencing Flow



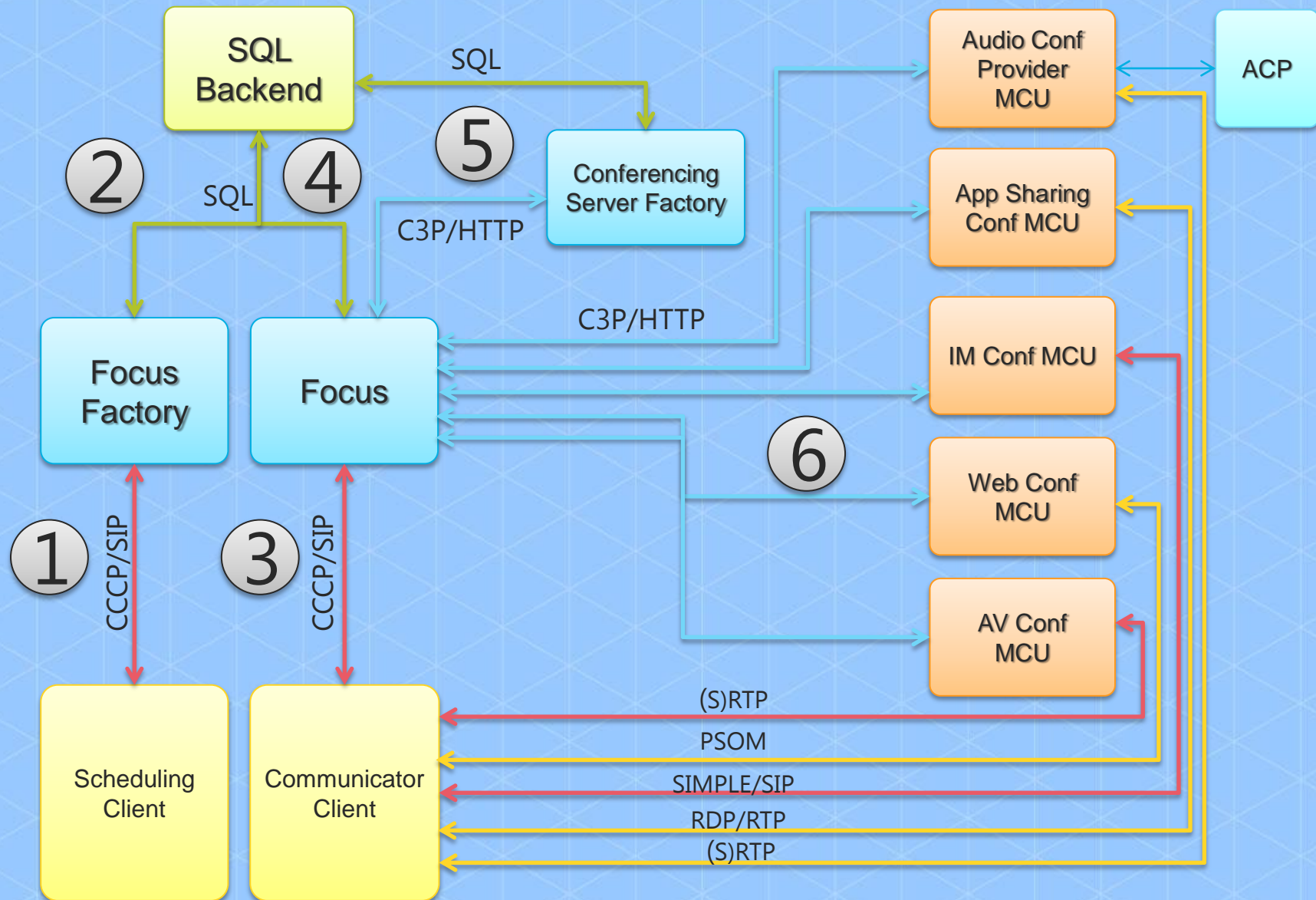
Web Conferencing Flow



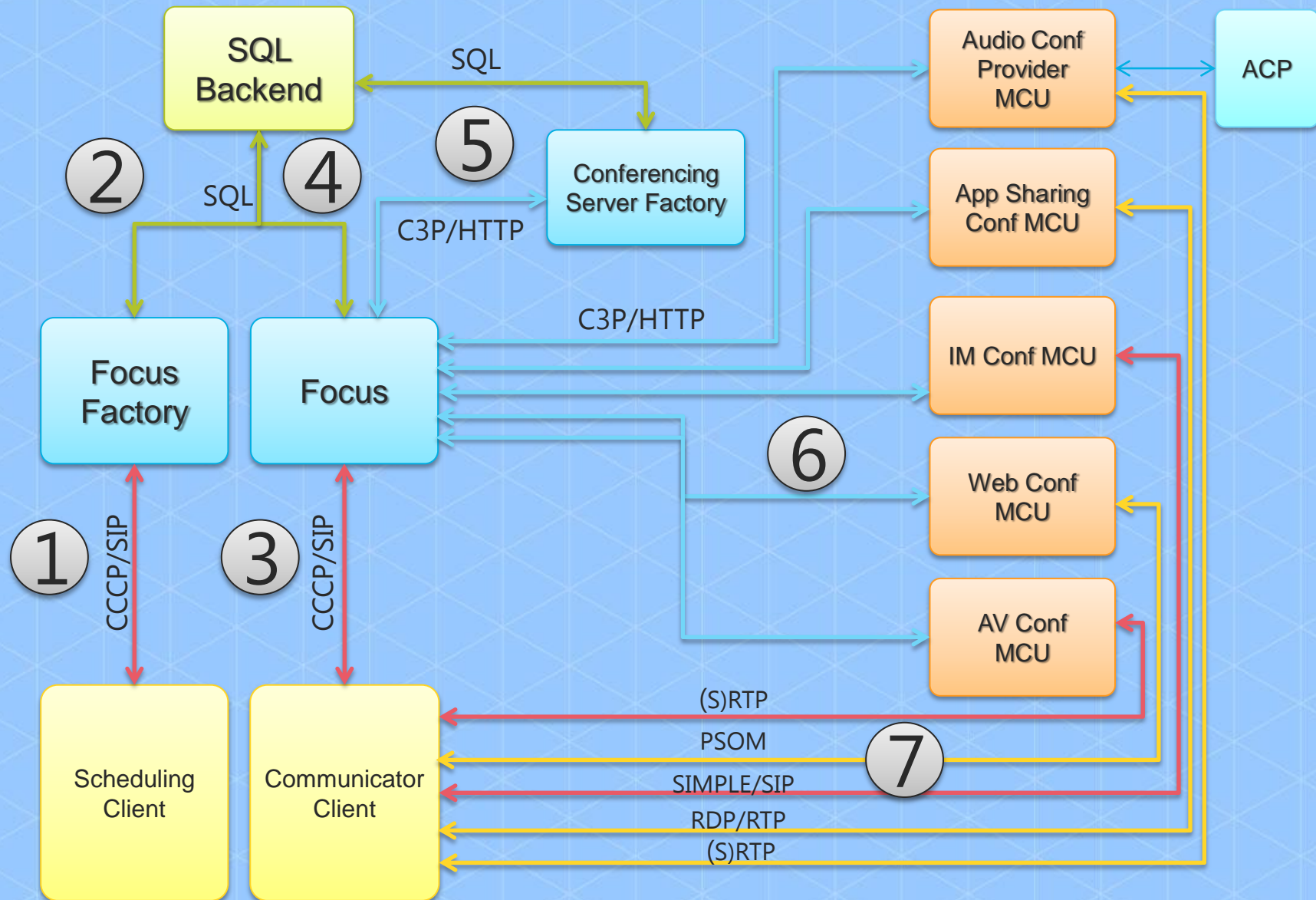
Web Conferencing Flow



Web Conferencing Flow



Web Conferencing Flow



Client Details

Client Requirements



Conferencing Support in Lync 2010 clients

| Feature/capability | Lync 2010 | Lync Web App | Lync 2010 Attendee | Lync 2010 Attendant | Lync 2010 Phone Edition | Communicator for Mac 2011 |
|--------------------------------|-----------|-------------------------|--------------------|---------------------|-------------------------|---------------------------|
| Computer audio | • | | • | • | • | • |
| Video | • | | • | | | • |
| In-meeting presenter controls | • | • | • | | | |
| Access detailed meeting roster | • | • | • | • | | |
| Participate in multiparty IM | • | • | • | • | | • |
| Share the desktop | • | • (requires plug-in) | • | | | • |
| Share a program | • | • (requires plug-in) | • | | | |
| Add anonymous participants | • | • | • | | | |
| Use dial-in audio conferencing | • | • | • | • | | |
| Initiate a meeting | • | | | | | |
| Present PowerPoint | • | | • | | | |
| Use a whiteboard | • | • | • | | | |
| Conduct polls | • | • | • | | | |
| Share files | • | • | • | | | |
| Schedule meeting/conference | • | ResKit | | | | |

Video – Supported Formats

| | |
|---------------------------|--|
| Display Resolution | 1024x768 or higher required |
| Memory | Windows 7 or Windows Vista: 2 gigabytes (GB) of RAM Windows XP: 1 GB of RAM |
| Video Memory | 128 MB of Video RAM DirectX® 9 |

Video – Supported Formats

CIF

- Common Interchange Format
- 352x288, 15 fps, 350 kbps
- Single Core > 1.5GHz

| | |
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VGA

- Video Graphics Array
- 640x480, 25 fps, 700 kbps
- Dual Core > 1.9GHz

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HD

- High Definition
- 1280x720(16:9), 25 fps, 1.5 Mbps
- Quad Core > 2 GHz

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- Dual Core > 1.9GHz

Panorama

- Polycom CX5000 RoundTable
- 1056x144 (22:3), 15 fps, 350 kbps
- Single Core > 2 GHz

| | |
|---------------------------|--|
| Display Resolution | 1024x768 or higher required |
| Memory | Windows 7 or Windows Vista: 2 gigabytes (GB) of RAM Windows XP: 1 GB of RAM |
| Video Memory | 128 MB of Video RAM DirectX® 9 |

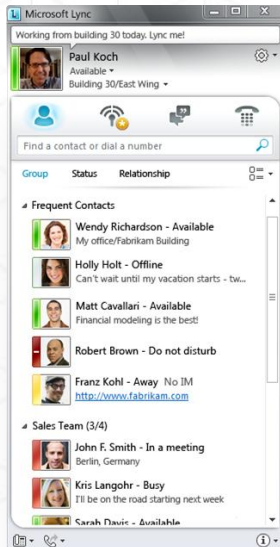
Audio/Video Capacity Planning

| Media | Codec | Average bandwidth (Kbps) | Estimated activity (%) | Maximum bandwidth (Kbps) |
|------------------|---------|--------------------------|------------------------|--------------------------|
| Wideband Audio | RTAudio | 34.8 | 61 | 57 |
| Wideband Audio | Siren | 22.2 | 43 | 51.6 |
| Narrowband Audio | RTAudio | 25.9 | 65 | 39.8 |
| Video (CIF) | RTVideo | 258.3 | 82 | 350 |
| Panoramic Video | RTVideo | 220.5 | 70 | 350 |
| Video (VGA) | RTVideo | | | 600 |
| Video (HD) | RTVideo | | | 1500 |

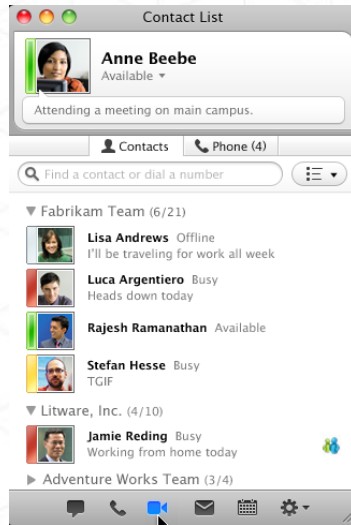
The network bandwidth numbers represent one-way traffic only and take Silence-suppression into account.

Lync Works Devices

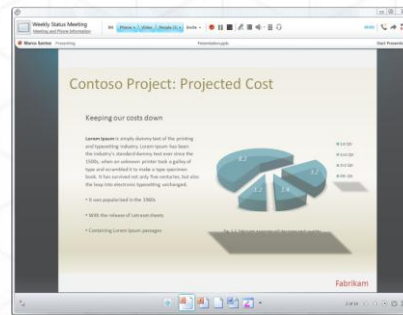
Platforms and



PC



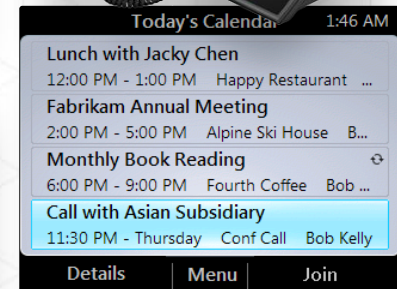
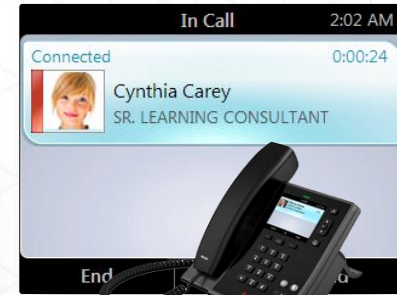
Mac



Browser



Mobile



Desk Phones

IM/P and Contact Management

- Contacts: Photo, Contact list, Contact card, Enterprise search
- Presence: My status, Contact presence
- Instant Messaging: IM, Multi-party IM, send location

| Feature | Windows Phone 7.5 "Mango" | Nokia Symbian 3 SR2 1.11+ | iPhone 4+ | iPad 4+ | Android 2.3+ |
|--|---------------------------------|---------------------------------|--------------|---------|-----------------|
| Presence and Instant Messaging | | | | | |
| Lync and Lync Online connectivity | ✓ | ✓ | ✓ | ✓ | ✓ |
| New UI, Photo, status, Presence | ✓ | ✓ | ✓ | ✓ | ✓ |
| View Lync Contact List | ✓ | ✓ | ✓ | ✓ | ✓ |
| Search in Corporate Directory and view contact card | ✓ | ✓ | ✓ | ✓ | ✓ |
| IM, Multi-party Conversation | ✓ | ✓ | ✓ | ✓ | ✓ |
| Distribution List expansion | ✓ | ✓ | ✓ | ✓ | ✓ |
| Send Bing Map Location in IM (GPS Based) | | | ✓ | ✓ | |
| Manage contact list | | ✓ | | | |

Outside Voice

- Lync is my single phone identity
 - One phone number on my business card, no need to broadcast your mobile number to your colleagues
 - People can reach me virtually anywhere
 - Lync can ring my PC and mobile so that I never miss a call

| Feature | Windows Phone 7.5 "Mango" | Nokia Symbian 3 SR2 1.11+ | iPhone 4+ | iPad 4+ | Android 2.3+ phones |
|----------------------------------|---------------------------------|---------------------------------|--------------|---------|----------------------------------|
| Enterprise Voice | | | | | |
| Single Number Reach | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dial pad | ✓ | ✓ | ✓ | ✓ | ✓ |
| Call via work (PSTN Callback) | ✓ | ✓ | ✓ | ✓ | ✓ |
| Call forwarding | ✓ | ✓ | ✓ | ✓ | ✓ |
| Calling From Contact Card | ✓ | ✓ | ✓ | ✓ | ✓ |
| Calling from Conversation Window | ✓ | ✓ | ✓ | ✓ | ✓ |
| Visual voicemail | | | ✓ | ✓ | |

Demo

Conferencing Demo

Andrew Ehrensing
Microsoft Corporation



Questions?



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