

The Message Bus

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`draft-ietf-mmusic-mbus-transport-00.*`

`draft-ietf-mmusic-mbus-semantic-00.*`

Motivation

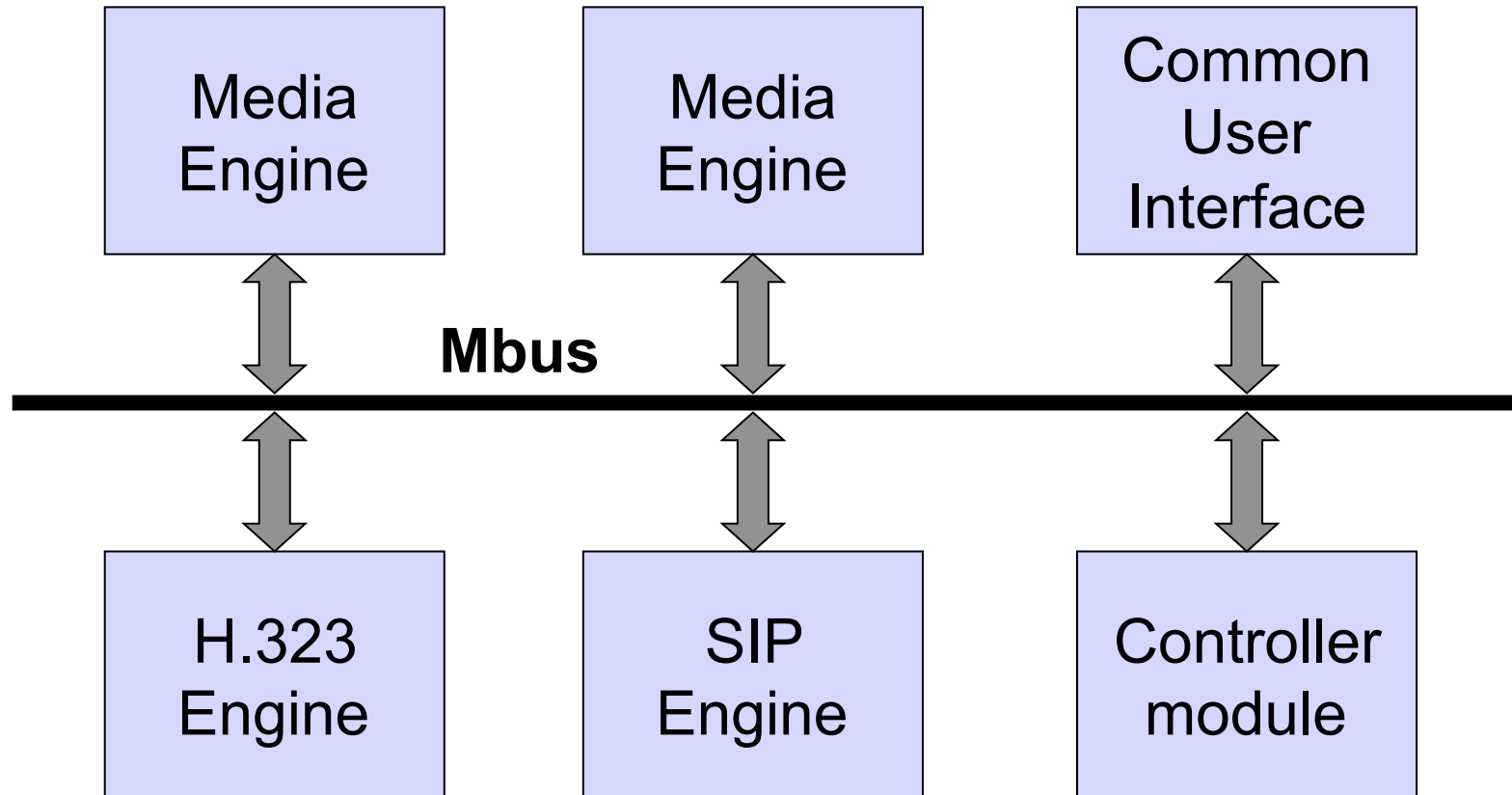
- **Provide a means for “local” coordination between conferencing applications**
- **To allow simple, ad-hoc cooperation between entities**
- **To help modular system design**
- **To allow integration of tools**

System Model

A user's representation in conferences:

- **Multiple tools run by a single user**
 - user interface, media engines, control, etc.
- **Need not all be on a single host**
- **Composition yields conferencing system**
 - unified appearance to the user
 - coherent reaction to user input

System Model



Addressing

- **By *media type***
 - **By *module type*: parts of a tool**
 - **Specific *applications***
 - **Specific *instances***
 - Multiple names per application possible
 - Process ≠ Mbus entity
 - **Wildcarding allowed (‘*’)**
- (audio engine rat 4099@10.0.0.1)**

Transport Mechanisms

- **Link local multicast or directed unicast**
- **Reliability achieved via retransmission**
 - for fully qualified addresses only
 - restricted msg scope makes this easy
- **Per-source ordering property**
 - because it's link local
 - single unack'd message per destination

Transport Channels

- **Link local multicast address
(or unicast address of destination)**
- **Well-defined base port per user**
 - for cross conference interactions
- **Separate port per conference**
- **Collision avoidance between users**
 - hash functions + message digest

Security

- **Digital signatures to prevent spoofing**
- **Encryption for privacy**
- **Secure end system assumed, protecting against outsiders**
 - **store the hash- and encryption-keys in a local file or the registry**
 - **may require manual configuration**

Message Format

- **Common format for all messages**

`<Message Digest>`

`mbus/1.0 <seq#> <ts> <type> <src> <dst> <acklist>`

`cmd (args)`

`cmd (args)`

`...`

ts: **time stamp**

type: **reliable/unreliable**

acklist: **piggybacked ACKs**

Command Format

- **Commands are split into categories**
 - Specific to media, protocol, etc.
- **Structure in command names indicates categories**
 - `rtp.source.mute, audio.input.gain`
- **Self-describing commands**
 - allows processing/ignoring regardless of the entity/ies a command was sent to

Message Classes

- **Currently defined**
 - MBUS . ***
 - RTP . ***
 - AUDIO . ***
 - CALL-CONTROL . ***
- **Further classes envisioned**
 - security**
 - control (capabilities?, floor?, policy?)**

Example

```
314159fe3289e2718289834eba43746823...
```

```
mbus/1.0 42 1998 U
```

```
  (audio engine rat 1234)
```

```
  (audio ui meccano-ui 1235)
```

```
  (27 28)
```

```
audio.output.powermeter (75)
```

```
rtp.source.active (jo@10.0.0.2 100)
```

```
rtp.source.active (csp@10.0.0.1 100)
```