

OCA Alliance
**Open Control Architecture
(OCA)**
Technical Overview

for the OCA Alliance:
Jeff Berryman
Bosch Communications Systems

What is OCA?

- Control and monitoring architecture for networked media devices
 - "Media" = audio & video
- OCA is not
 - A media transport standard
 - A device programming model
 - A system controller programming model
 - A user interface generation architecture
- Target
 - Professional applications
 - Networks of all sizes, tiny (2 nodes) to huge (10k nodes)
 - Mission-critical applications
- Goal
 - Open public standard
 - Not limited to audio in the future
- Honored Ancestor
 - AES-24

Features

- Flexible
 - Expandable, evolvable
 - Upwards-compatible
 - Friendly to proprietary extension (aka "laterally compatible")
 - Multiple protocol platforms
- Functional
 - Full discovery and enumeration feature set
 - Full multiple controller support
 - Supports control grouping - submastering, ganging, etc
 - Supports parameter storage - presets, scenes, snapshots, etc.
 - Supports multiple simultaneous control and media transport networks
- Robust
 - Fully acknowledged
 - Security option (using TLS)
- Efficient
 - Compact binary protocol data formats (*in most protocol versions*)

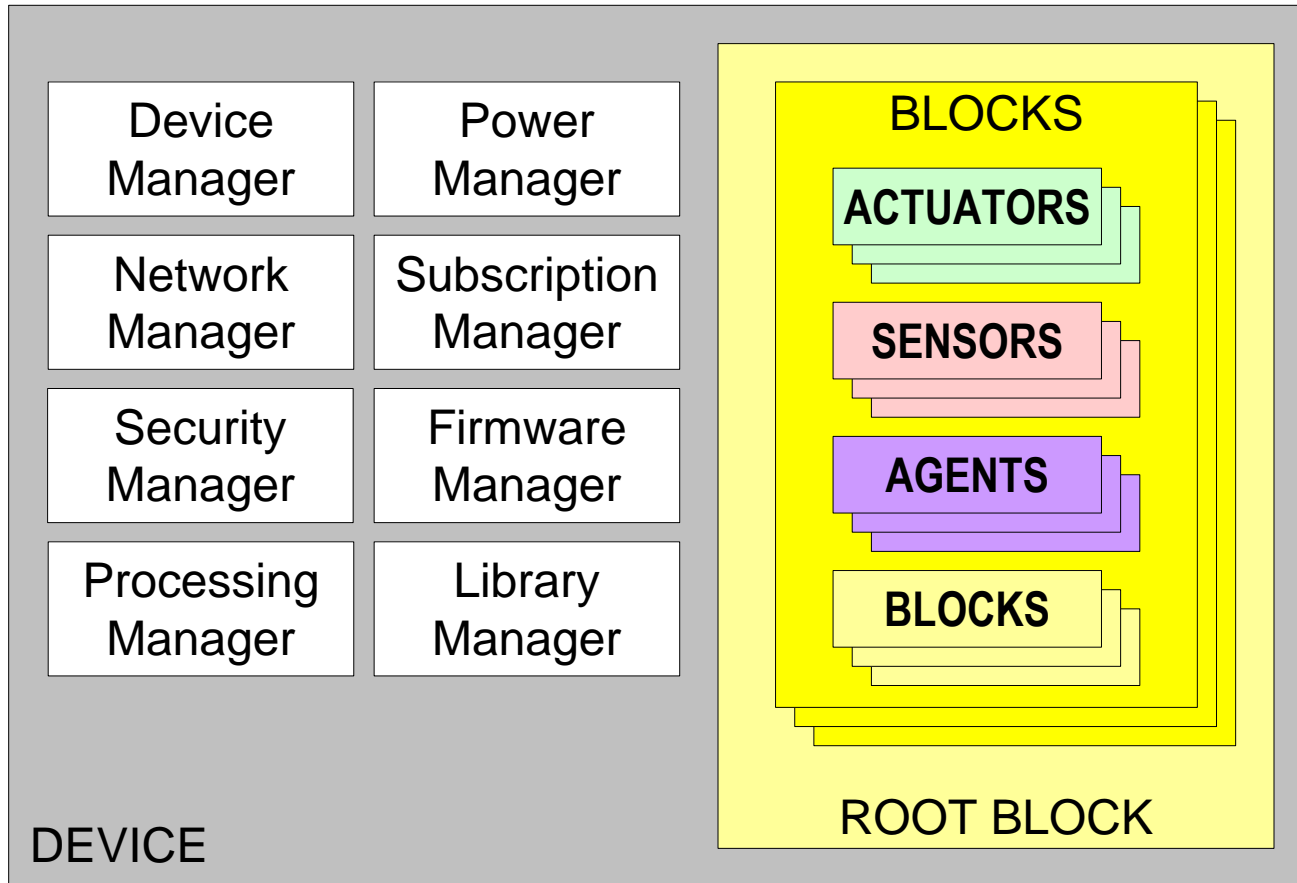
Divisions

- Framework (OCF)
 - Device model
 - Functional mechanisms

- Class Tree (OCC)
 - Object-oriented definition of control & monitoring functional repertoire.*
 - Manager Classes *Device housekeeping & global functions*
 - Worker Classes *Signal processors & monitors*
 - Agent Classes *Control & monitoring modifiers/aggregators*

- Protocol Implementations (OCP.1 ... OCP.n)
 - OCA will be a family of protocols for different contexts.*
 - OCP.1 : for TCP/IP networks
 - OCP.2-n : TBD, may include USB, XML, ...

Device Model



Typical Classes

- **Workers**

- **Actuators**

- **OcaGain = { Value }**
 - **OcaFilterParametric = { Frequency, Boost, Shape }**
 - **OcaMute = { Setting [Muted | Unmuted] }**

- **Sensors**

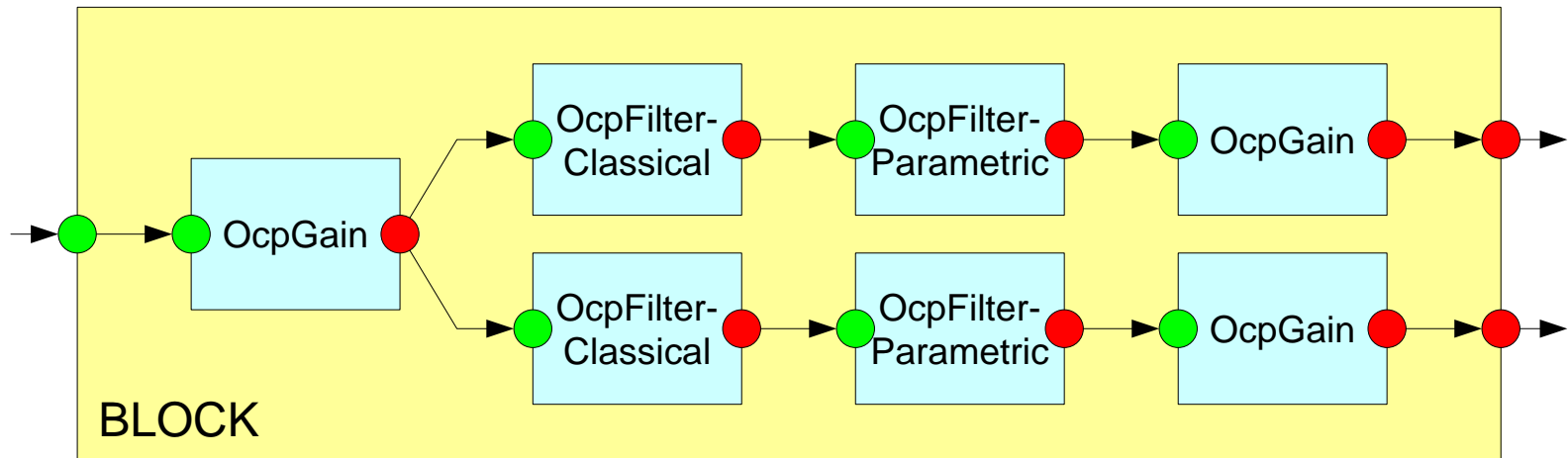
- **OcaLevelMeter = { Reading, MeterLaw }**
 - **OcaTemperatureSensor = { Reading }**

- **Blocks**

- **Agents**

- **Grouper = { Sets of Workers }**
 - **Library = { Sets of stored parameter values }**

Blocks



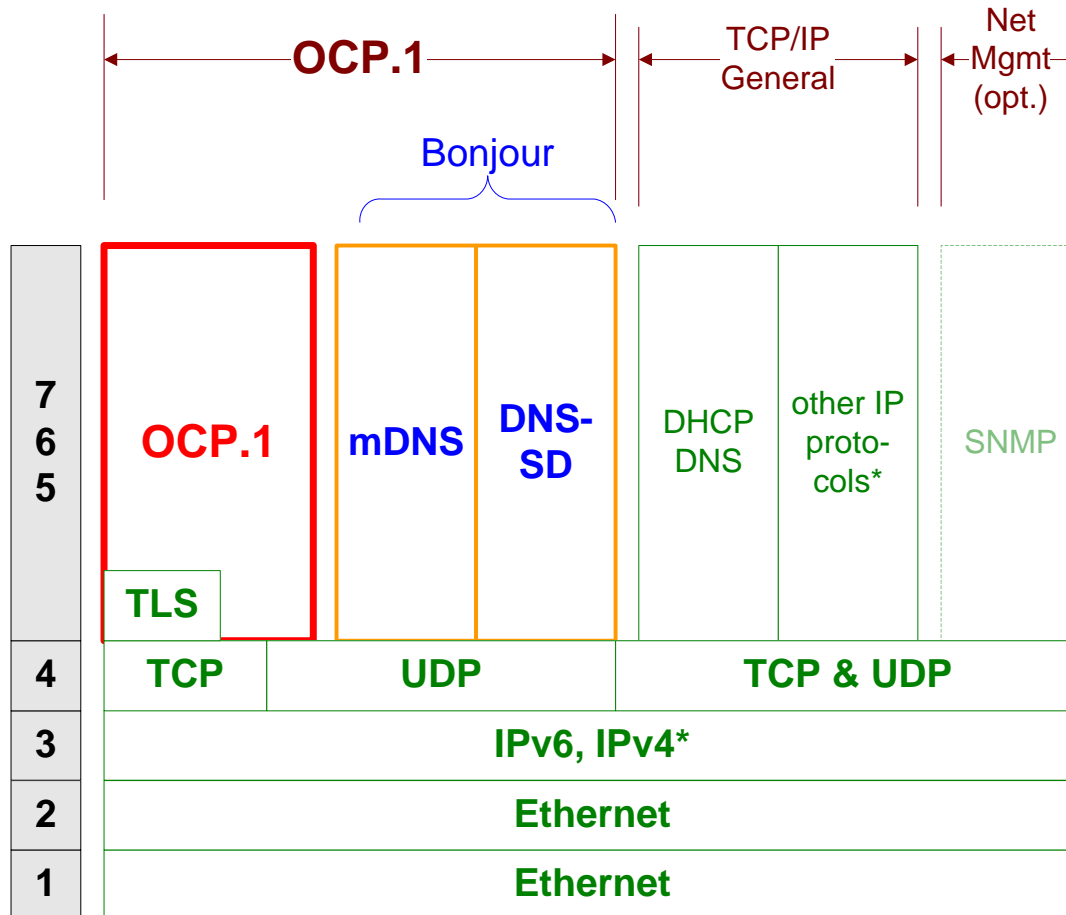
- **Collect Workers into useful sets**
- **Represent internal signal flows**
- **May be nested**

Grouping

GROUPE	Power Amp Gain Main Cluster Left Channel Tweeters	Power Amp Gain Main Cluster Left Channel Woofers	Power Amp Gain Main Cluster Right Channel Tweeters	Power Amp Gain Main Cluster Right Channel Woofers
Gain: Left	■	■		
Gain: Right			■	■
Gain: HF	■		■	
Gain: LF		■		■
Gain: Master	■	■	■	■

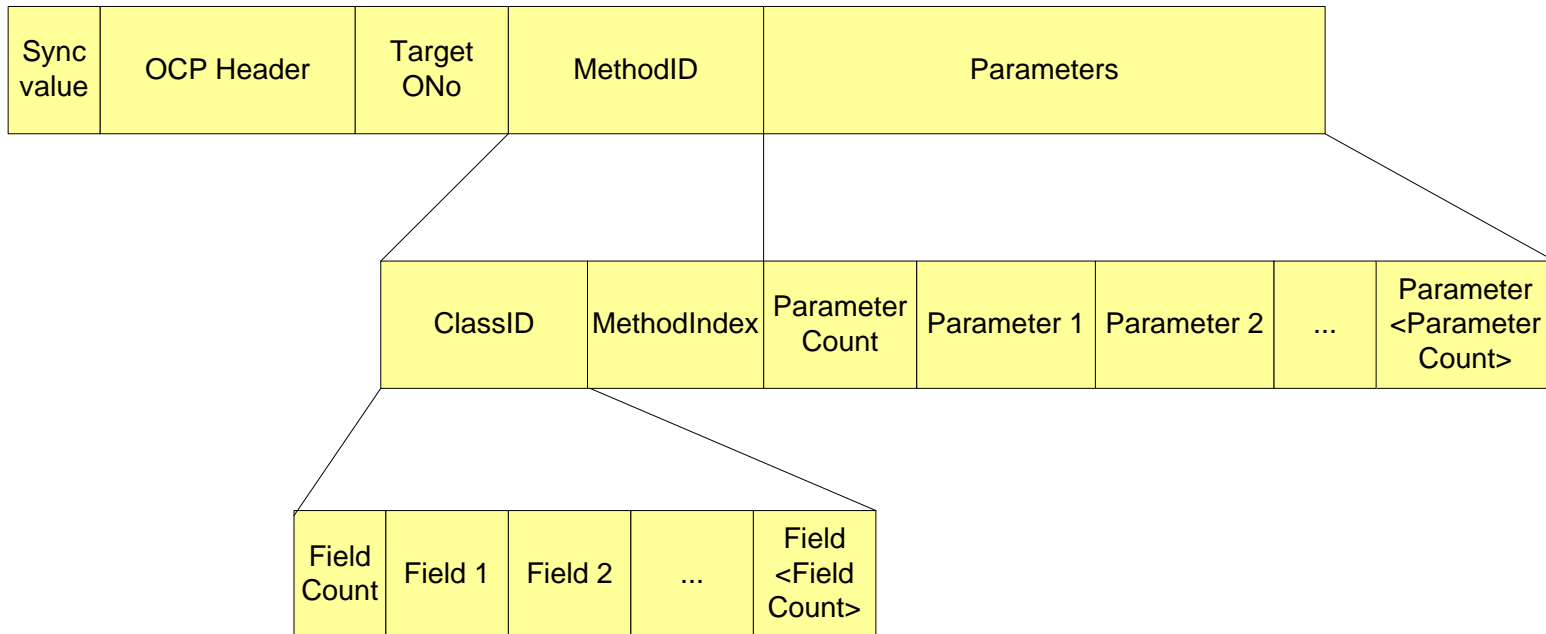
- **Groupers allow aggregate control actions (mastering)**
- **Grouping is independent of block configuration and signal flow**

OCP.1 - Protocol Context



* e.g. PIM-SSM, ARP, RARP, ICMP, ICMPV6, and IGMP

OCP.1 - Typical Protocol Data Unit



- This is the format of a command message.
- Other message types are similar
- Minimum command message length is about 25 bytes.

About the Alliance

- Unincorporated alliance of nine companies
 - Bosch Communications Systems
 - d&b audiotechnik
 - Duran Audio
 - LOUD Technologies Inc
 - Media Technology Systems
 - PreSonus
 - Salzbrenner Stagetec Mediagroup
 - TC Group
 - Yamaha Corporation
 - *plus 27 Observer members*
- Plan
 - Phase 1
 - Produce draft 1.0 of OCA Specification by end of Q1 2012
 - Turn it over to a public standards organization for rendering into a formal standard
 - Phase 2
 - Expand membership
 - Support development of the standard
 - Other activities TBD

www.oca-alliance.org