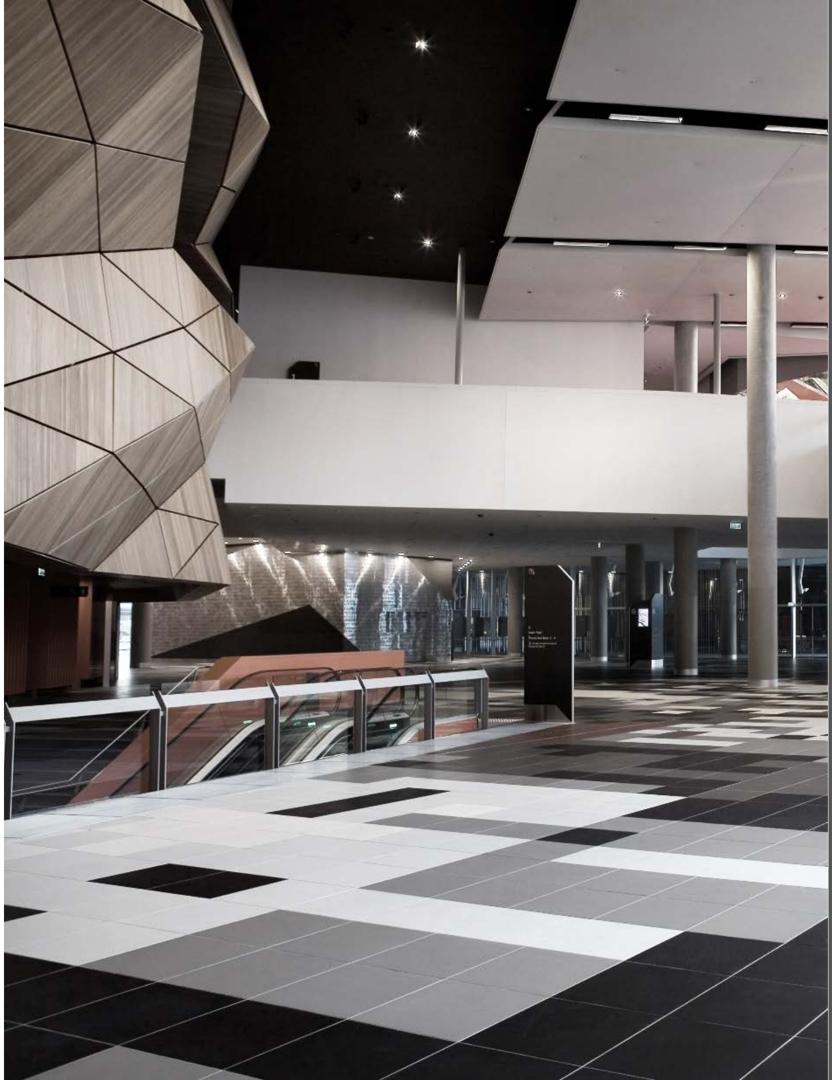
MELBOURNE CONVENTION & EXHIBITION CENTRE

Digital Signal Processor (DSP) Audio Upgrade

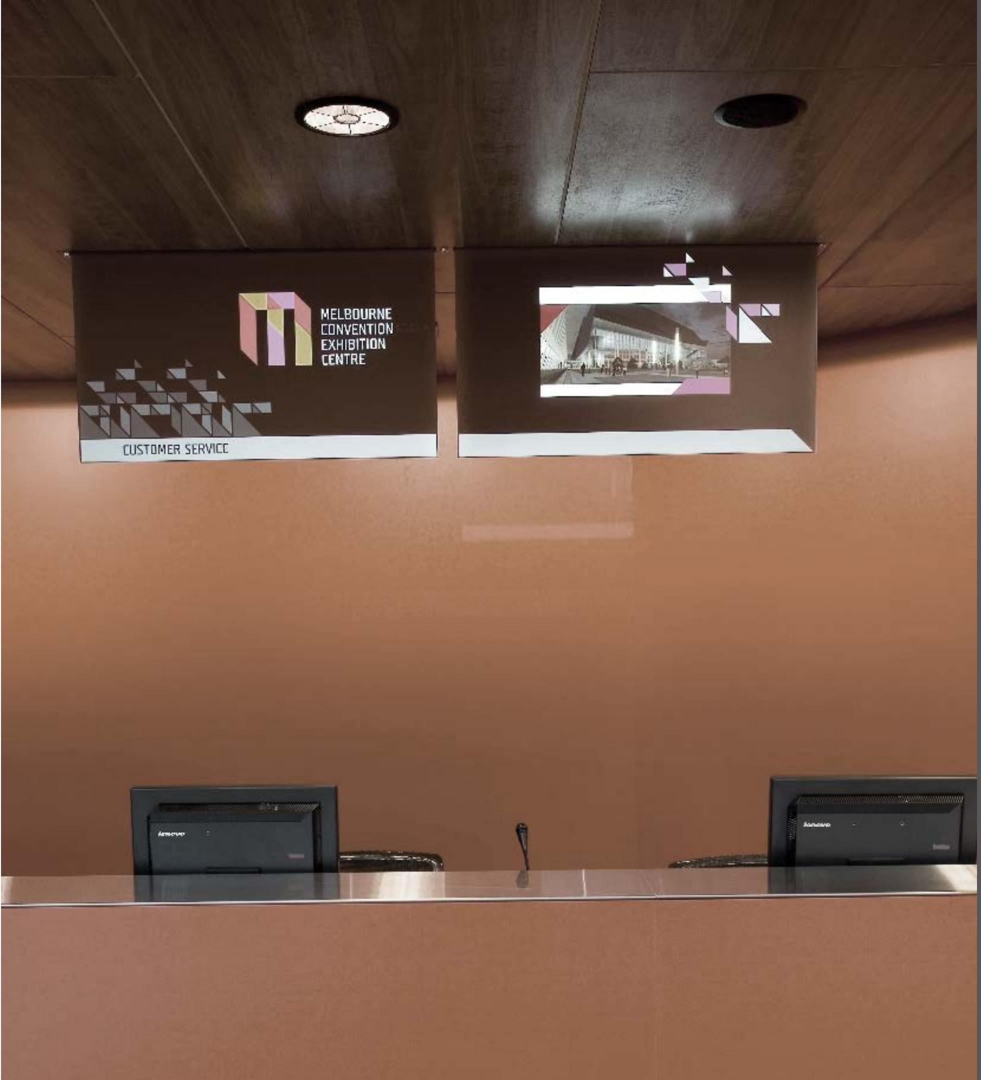
rutledgeav
engineeringexcellence



WELCOME & INTRODUCTIONS

- **Matt Edgcumbe**
  National Operations Manager (RAV)

- **Michael Walker**
  Equipment and Infrastructure Manager (MCEC)



AGENDA

- Rutledge AV
- Melbourne Convention & Exhibition Centre
- Background
- Moving Forward for MCEC
- Planning for the New DSP System
- The Solution
- Q&A

Complete Audio Visual Solutions

- Total audio visual solutions & support
- Australian owned national company
- Over 38 years in operation
- Over 315 staff across seven states/territories
- ISO9001 / ISO14001 / WHSEQ AS/NZS 4801:2001
- Highly qualified staff

Capability

- AV Design/Consultation
- AV Supply/Installation
- System Integration / Software Programming / Commissioning
- Digital Signage & Content Creation/Management
- IPTV
- LED Signage Screens
- Service & Support

Melbourne Convention & Exhibition Centre (MCEC)

Vision

To be the world’s best events destination,

leading the way in service, food and technology.

Mission

To connect people through memorable experiences.

MELBOURNE
CONVENTION
EXHIBITION
CENTRE

Melbourne Convention & Exhibition Centre (MCEC)

MCEC understands connections are what make an event memorable we achieve this through

- having the right spaces for people to connect
- leading technology to drive creativity
- a multi-functional Plenary
- 52 meeting rooms
- 30,000 square metres of pillar-less exhibition space
- 6-star Green Star Environment Rating

BACKGROUND

Background

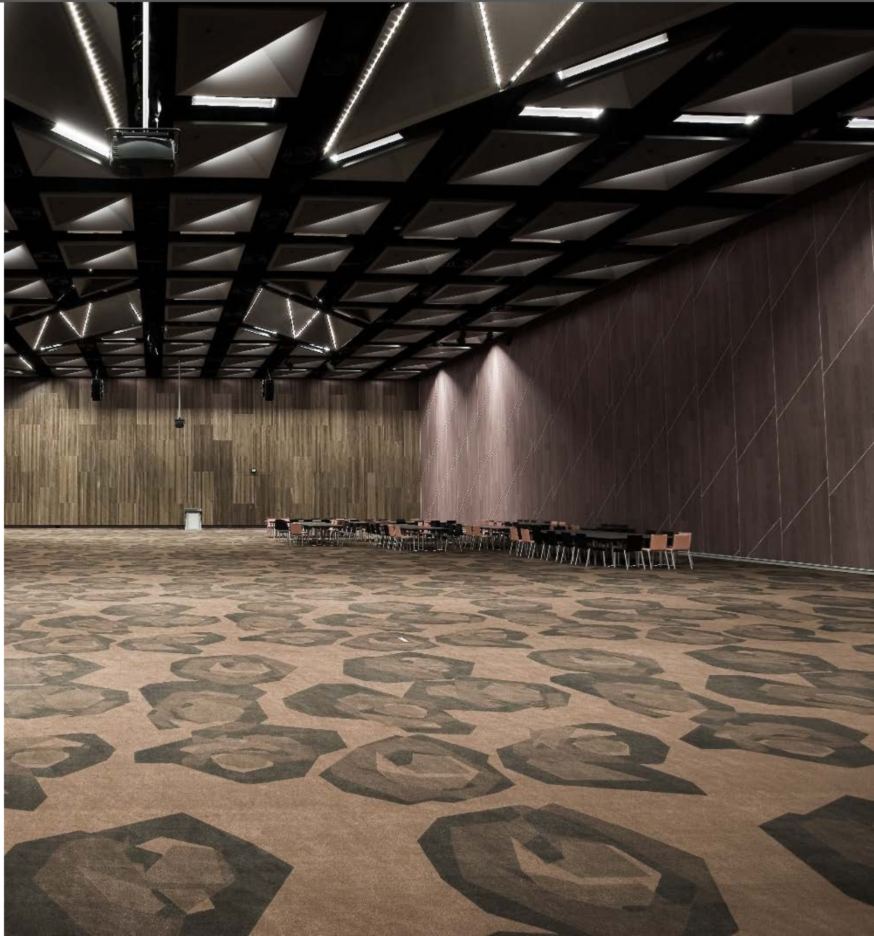
MCC Audio Visual Facilities

- Plenary
- Banquet Hall
- Large Meeting Rooms
- Medium Meeting Rooms
- Small Meeting Rooms
- Satellite Control Rooms
- Master Control Room
- Main Server Room
- Digital Signage
- Facility Wide PA EWIS

Background

MCC Audio Visual Facilities

- Plenary
- Banquet Hall
- Large Meeting Rooms
- Medium Meeting Rooms
- Small Meeting Rooms
- Satellite Control Rooms
- Master Control Room
- Main Server Room
- Digital Signage
- Facility Wide PA EWIS



Background

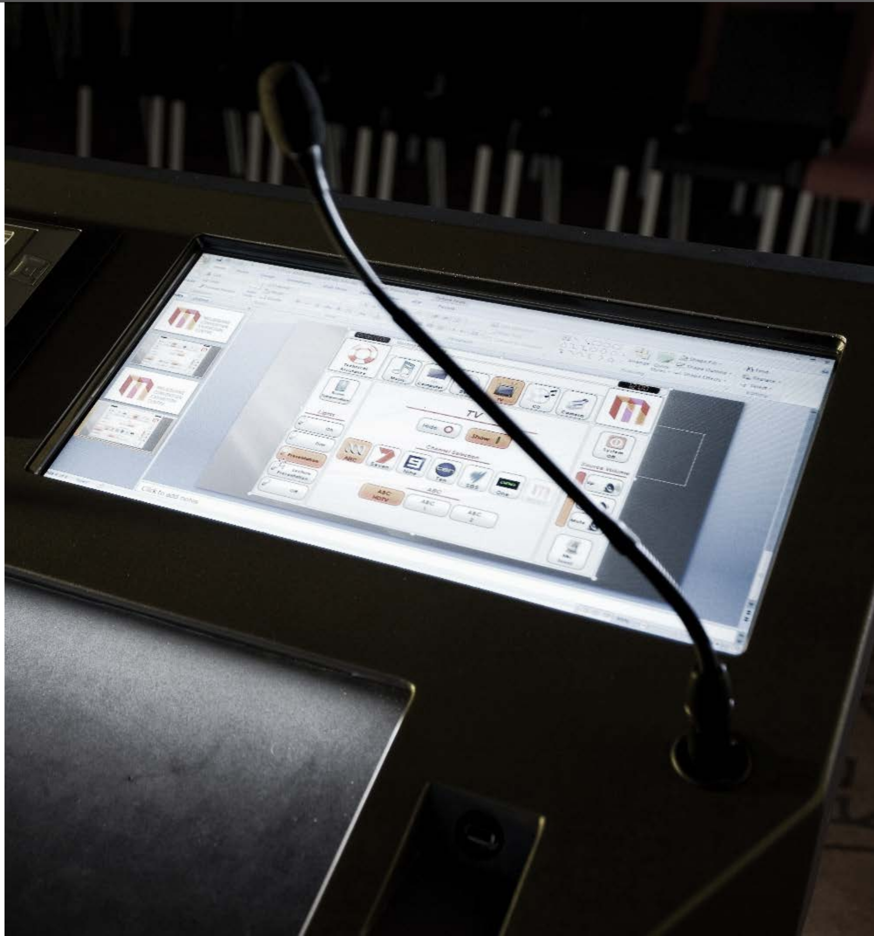
MCC Audio Visual Facilities

- Plenary
- Banquet Hall
- Large Meeting Rooms
- Medium Meeting Rooms
- Small Meeting Rooms
- Satellite Control Rooms
- Master Control Room
- Main Server Room
- Digital Signage
- Facility Wide PA EWIS

Background

MCC Audio Visual Facilities

- Plenary
- Banquet Hall
- Large Meeting Rooms
- Medium Meeting Rooms
- Small Meeting Rooms
- Satellite Control Rooms
- Master Control Room
- Main Server Room
- Digital Signage
- Facility Wide PA EWIS



Background

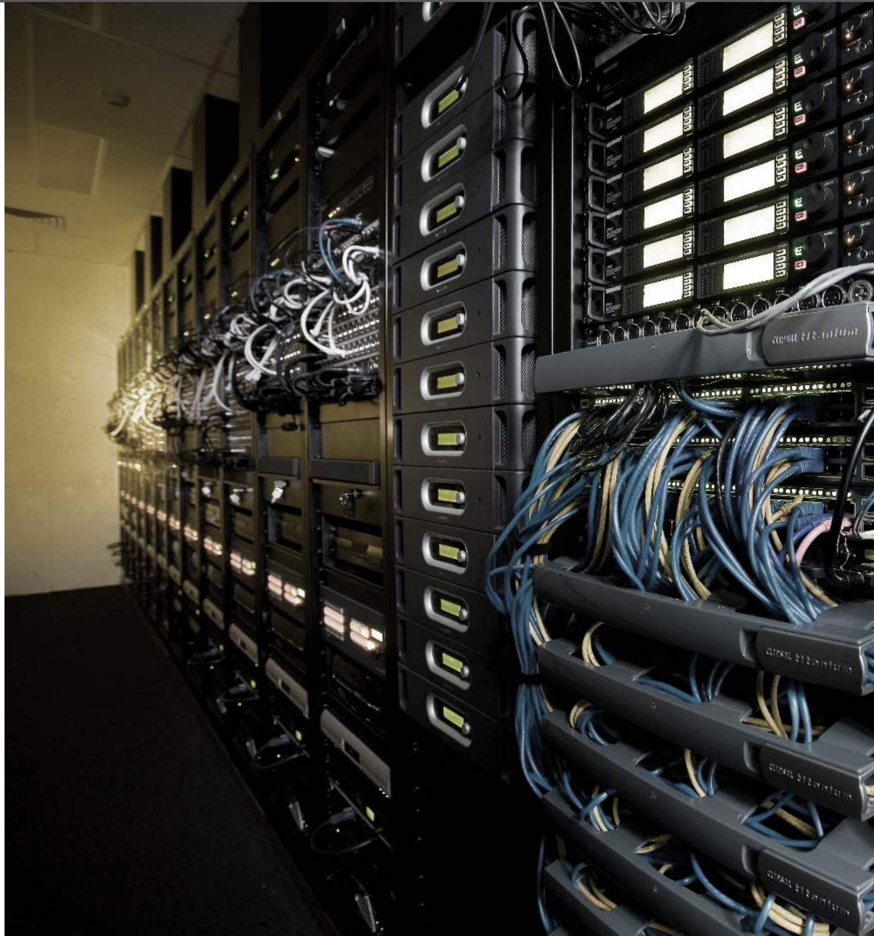
MCC Audio Visual Facilities

- Plenary
- Banquet Hall
- Large Meeting Rooms
- Medium Meeting Rooms
- Small Meeting Rooms
- Satellite Control Rooms
- Master Control Room
- Main Server Room
- Digital Signage
- Facility Wide PA EWIS

Background

MCC Audio Visual Facilities

- Plenary
- Banquet Hall
- Large Meeting Rooms
- Medium Meeting Rooms
- Small Meeting Rooms
- Satellite Control Rooms
- Master Control Room
- Main Server Room
- Digital Signage
- Facility Wide PA EWIS



Background

MCC Audio Visual Facilities

- Plenary
- Banquet Hall
- Large Meeting Rooms
- Medium Meeting Rooms
- Small Meeting Rooms
- Satellite Control Rooms
- Master Control Room
- Main Server Room
- Digital Signage
- Facility Wide PA EWIS

Background

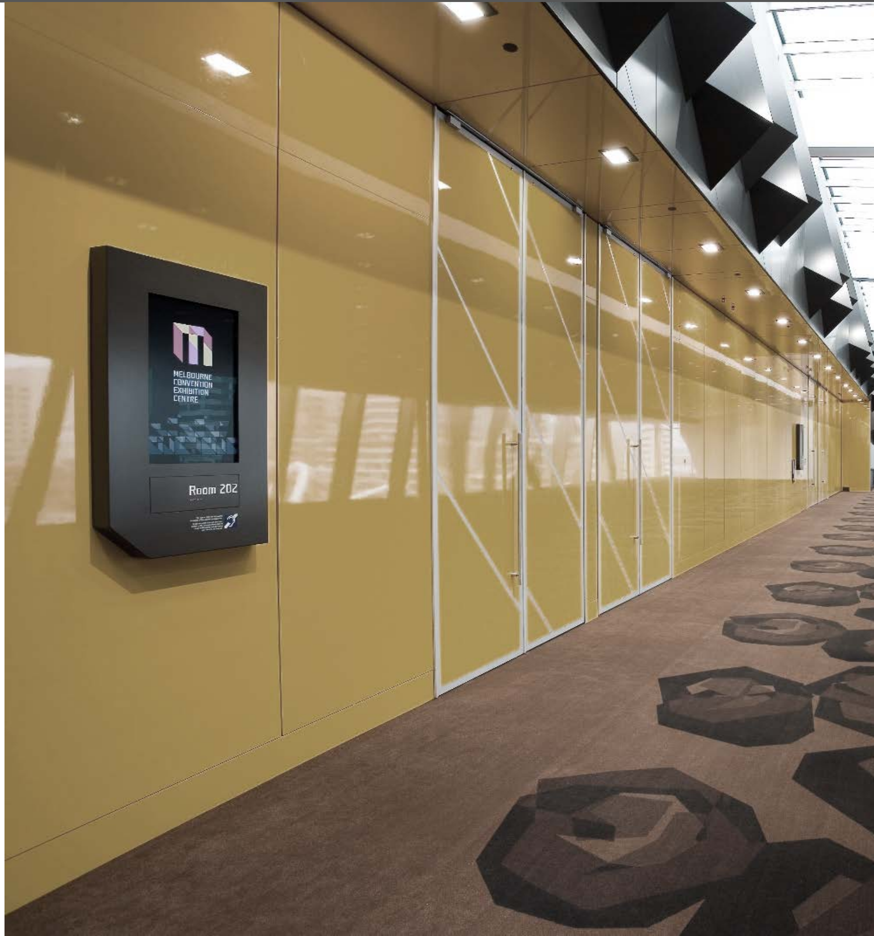
MCC Audio Visual Facilities

- Plenary
- Banquet Hall
- Large Meeting Rooms
- Medium Meeting Rooms
- Small Meeting Rooms
- Satellite Control Rooms
- Master Control Room
- Main Server Room
- Digital Signage
- Facility Wide PA EWIS

Background

MCC Audio Visual Facilities

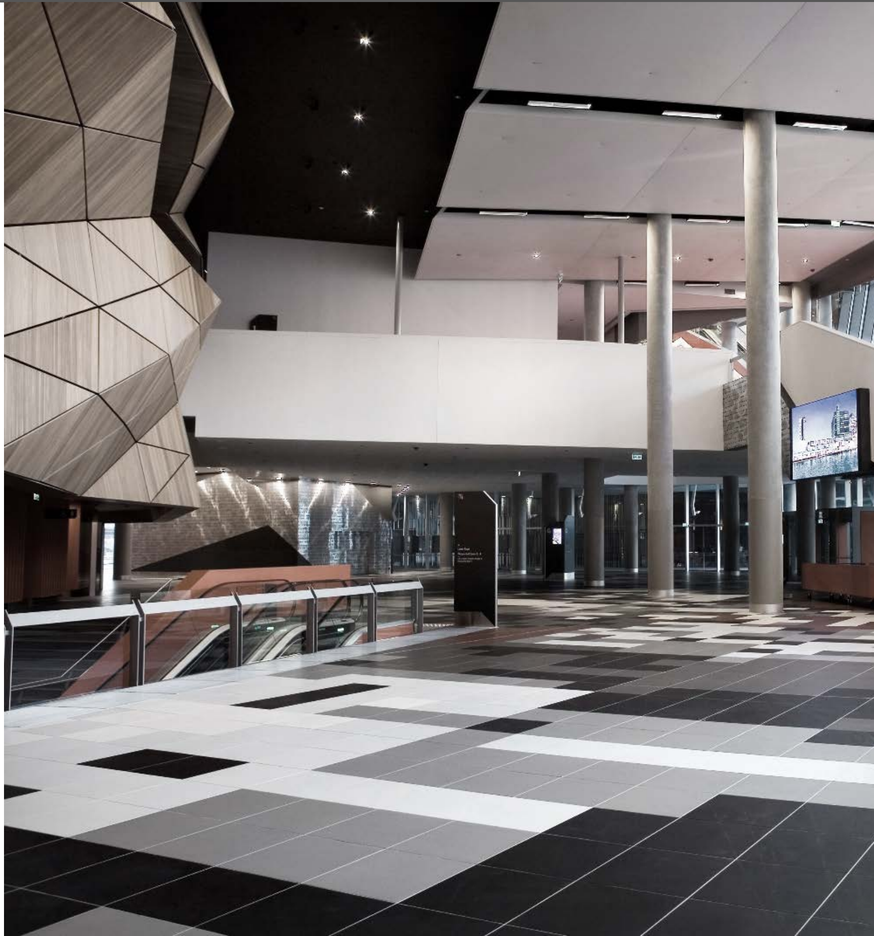
- Plenary
- Banquet Hall
- Large Meeting Rooms
- Medium Meeting Rooms
- Small Meeting Rooms
- Satellite Control Rooms
- Master Control Room
- Main Server Room
- Digital Signage
- Facility Wide PA EWIS



Background

MCC Audio Visual Facilities

- Plenary
- Banquet Hall
- Large Meeting Rooms
- Medium Meeting Rooms
- Small Meeting Rooms
- Satellite Control Rooms
- Master Control Room
- Main Server Room
- Digital Signage
- Facility Wide PA EWIS



Background

MEC Audio Visual Facilities

- Auditorium
- Large Meeting Rooms
- Small Meeting Rooms
- Satellite Control Room
- Digital Signage
- Facility Wide PA EWIS
- Exhibition Halls

Background

MEC Audio Visual Facilities

- Auditorium
- Large Meeting Rooms
- Small Meeting Rooms
- Satellite Control Room
- Digital Signage
- Facility Wide PA EWIS
- Exhibition Halls

Background

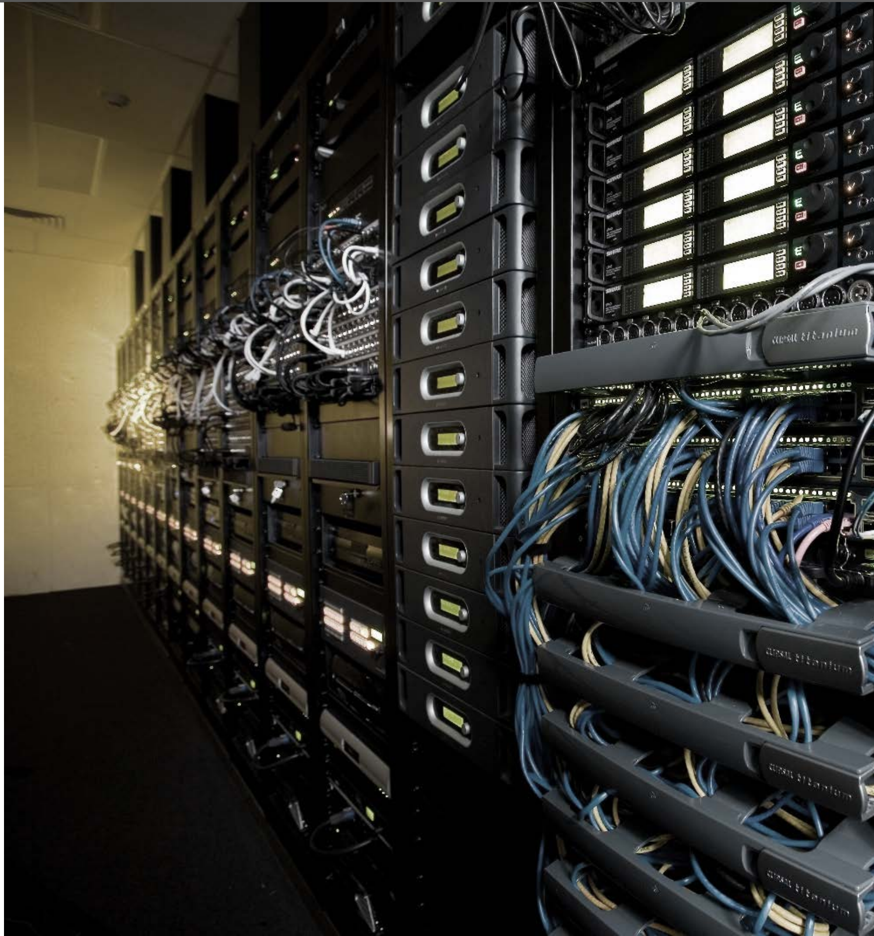
MEC Audio Visual Facilities

- Auditorium
- Large Meeting Rooms
- Small Meeting Rooms
- Satellite Control Room
- Digital Signage
- Facility Wide PA EWIS
- Exhibition Halls

Background

MEC Audio Visual Facilities

- Auditorium
- Large Meeting Rooms
- Small Meeting Rooms
- Satellite Control Room
- Digital Signage
- Facility Wide PA EWIS
- Exhibition Halls



Background

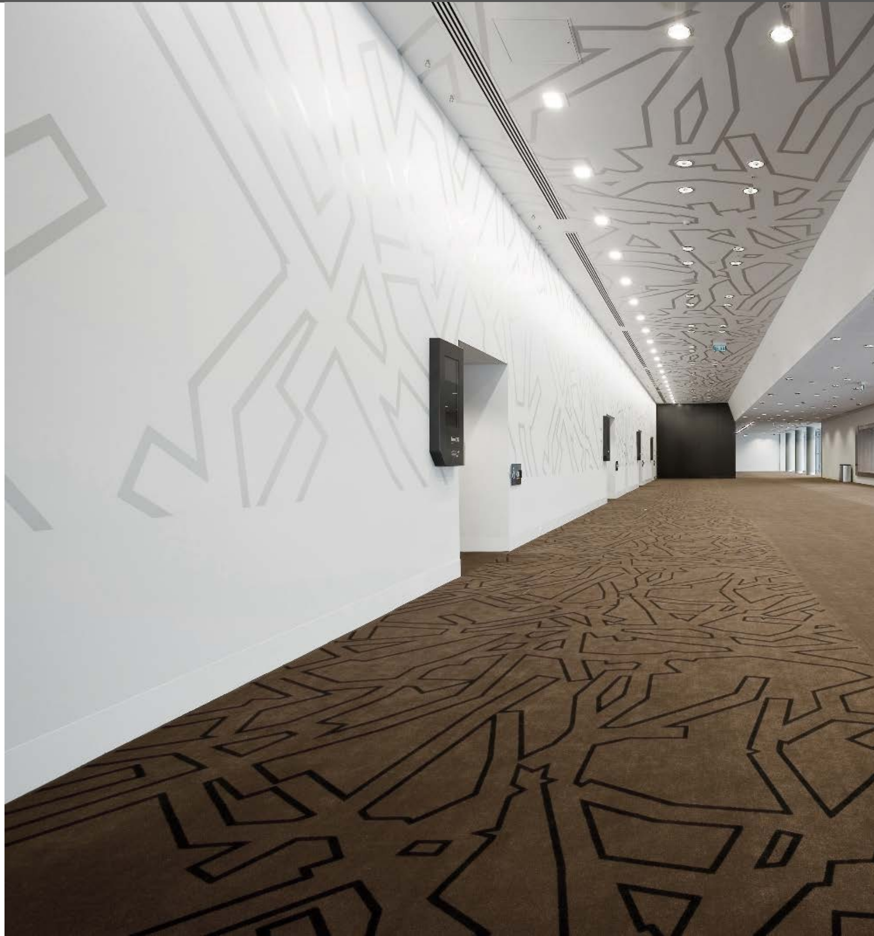
MEC Audio Visual Facilities

- Auditorium
- Large Meeting Rooms
- Small Meeting Rooms
- Satellite Control Room
- Digital Signage
- Facility Wide PA EWIS
- Exhibition Halls

Background

MEC Audio Visual Facilities

- Auditorium
- Large Meeting Rooms
- Small Meeting Rooms
- Satellite Control Room
- Digital Signage
- Facility Wide PA EWIS
- Exhibition Halls



Background

MEC Audio Visual Facilities

- Auditorium
- Large Meeting Rooms
- Small Meeting Rooms
- Satellite Control Room
- Digital Signage
- Facility Wide PA EWIS
- Exhibition Halls

Background

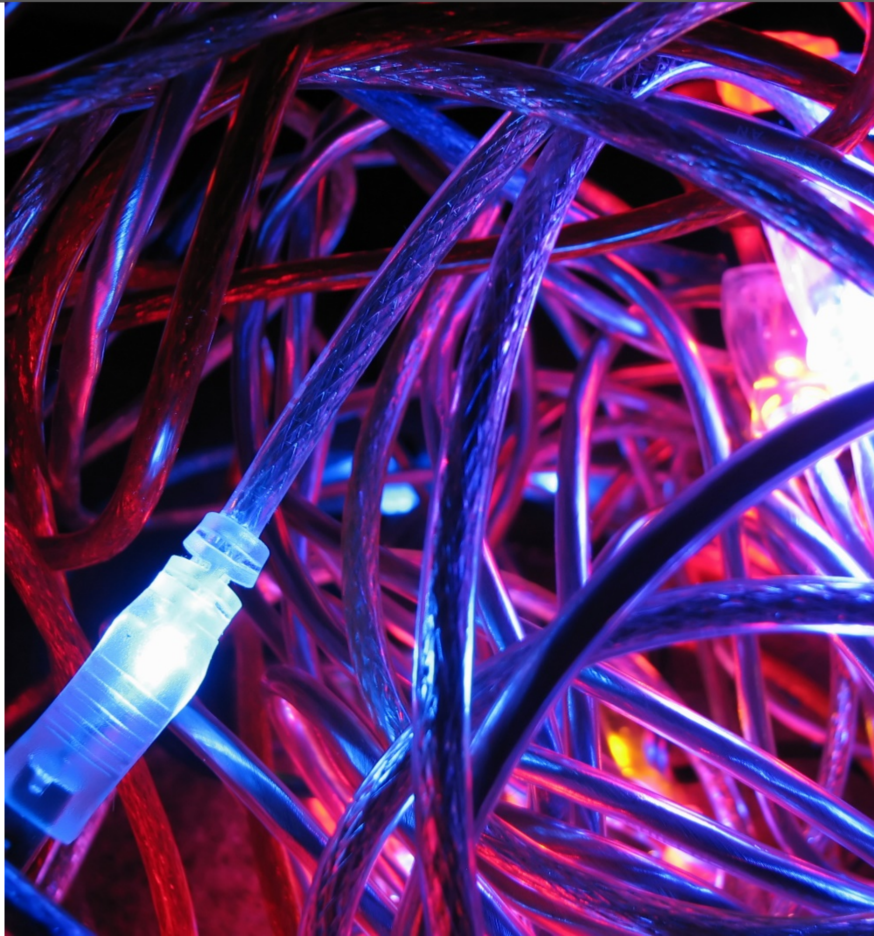
Facility Upgrades

- Digital Video Upgrade
- Fibre Cabling Infrastructure
- BYOD Capability
- Control Touch Screen Upgrade

Background

Facility Upgrades

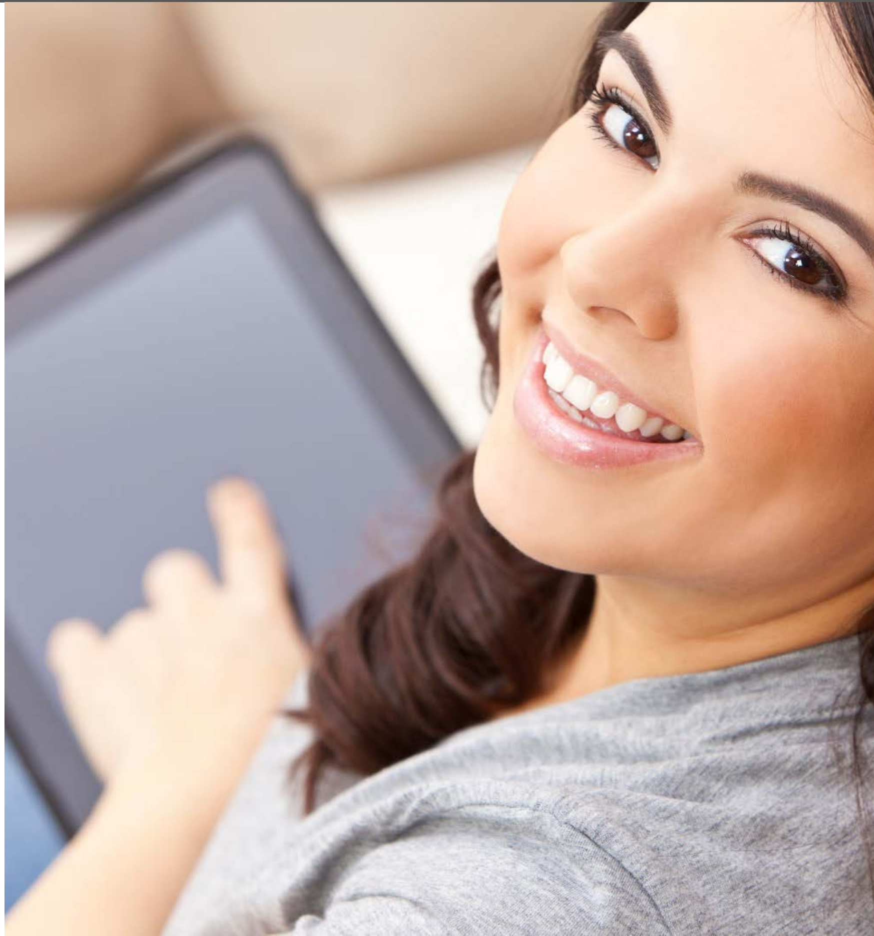
- Digital Video Upgrade
- Fibre Cabling Infrastructure
- BYOD Capability
- Control Touch Screen Upgrade



Background

Facility Upgrades

- Digital Video Upgrade
- Fibre Cabling Infrastructure
- BYOD Capability
- Control Touch Screen Upgrade



Background

Facility Upgrades

- Digital Video Upgrade
- Fibre Cabling Infrastructure
- BYOD Capability
- Control Touch Screen Upgrade

Background

Audio DSP Systems

- Biamp Audia Flex Processor (per room)
- Cobranet Distribution Protocol
- Ether Sound for Performance Systems
- Bosch Praesidio Integrated EWIS/PA
- Cisco Converged Network

MOVING FORWARD FOR MCEC

Moving Forward for MCEC

MCEC Introduction

- 60,000 sqm of event space
- 42 meeting and event spaces
- Over 1,000 events per year
- Over a million attendees per year
- Control Touch Screen Upgrade

Moving Forward for MCEC

Previous System Operation

- BiAmp Audiaflex
- Cobranet protocol

Moving Forward for MCEC

Previous System Challenges

- Limitations
- Propagation of network errors
- Possibility of cascading failure

Moving Forward for MCEC

Drivers for Change

- Business – stability, reliability
- Operational – training needs for DSP reset procedures
- Technical
- User Experience

Moving Forward for MCEC

New Audio System Objectives

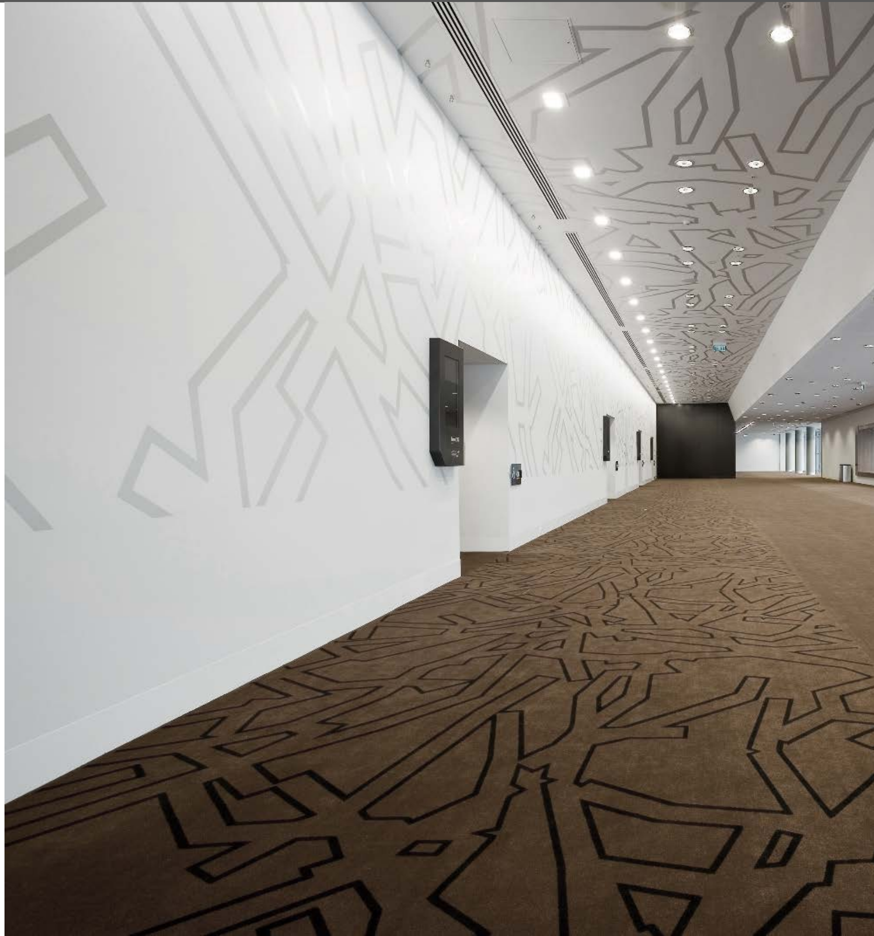
- Stability – redundant architecture
- No single point of failure
- Common protocols in both corporate and entertainment environment
- Compatible with wide variety of consoles

PLANNING FOR THE NEW DSP SYSTEM

Planning for the New DSP System

Installation Challenges

- Live environment
- Access is difficult, event spaces rarely available
- Upgrades done in sections, without affecting neighbouring events
- System upgrades and firmware updates rolled out retrospectively and in future planning



Planning for the New DSP System

Technical Innovations

- Research with multiple manufacturers since 2014-2015
- Collaborative approach taken with Harman on design and certification
- MCEC systems engineers, Rutledge AV working together on design and implementation

THE SOLUTION

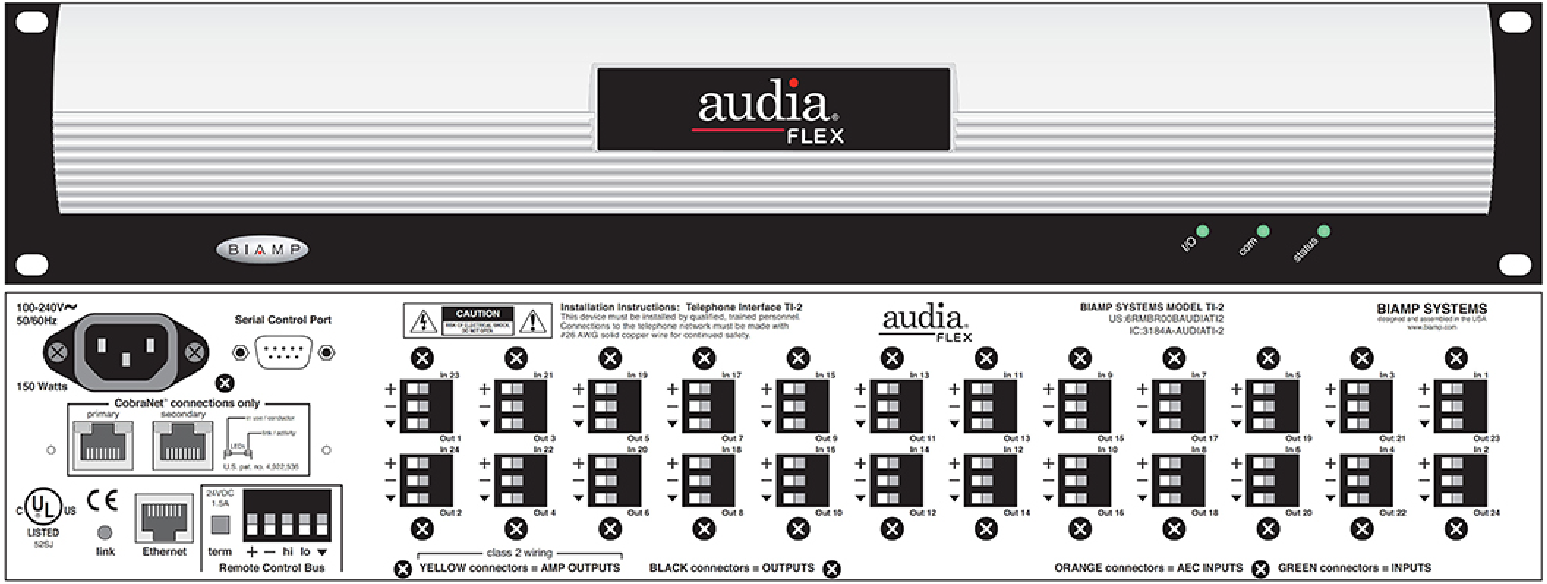
The Solution

Project Plan – Mission Critical Site

- Implementing in a live environment / venue
- Maintain central services
- Schedule around existing bookings
- Staged implementation

Decommission

- Biamp Audio Flex



The New System

- BSS London Digital Signal Processors
- BSS BLU-806

The Solution

The New System

- BSS BLU 326

The Solution

High Level Overview

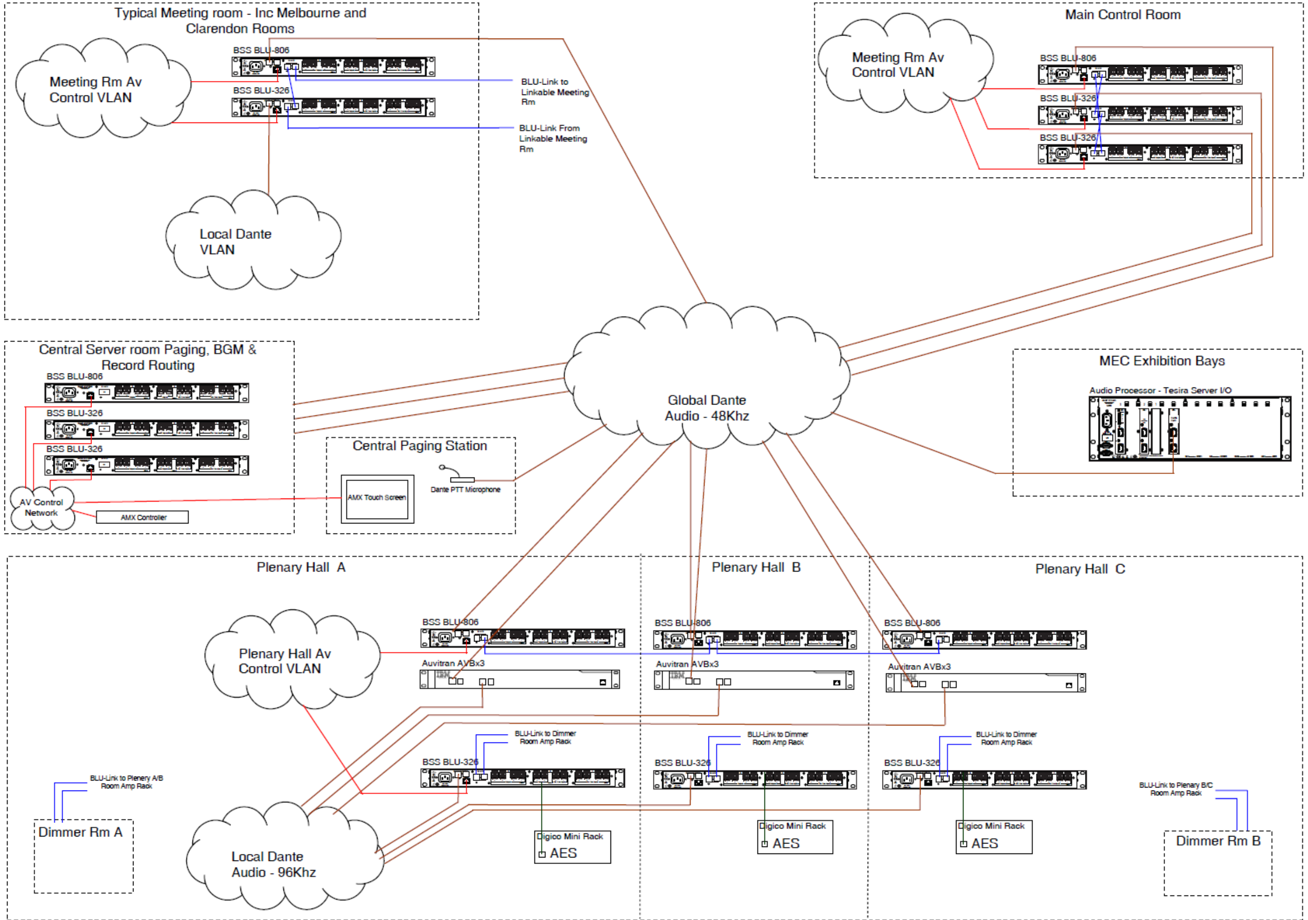
- Replace Cobranet solution
- Using standards based network topology for audio transmission
- Using latest audio over IP protocols

- Site Wide IP Networked Audio Solution via Dante
- Increased flexibility and connectivity
- Integration to existing EWIS system
- BSS Soundweb Hardware

- Venue wide distributed audio over IP system

The Solution

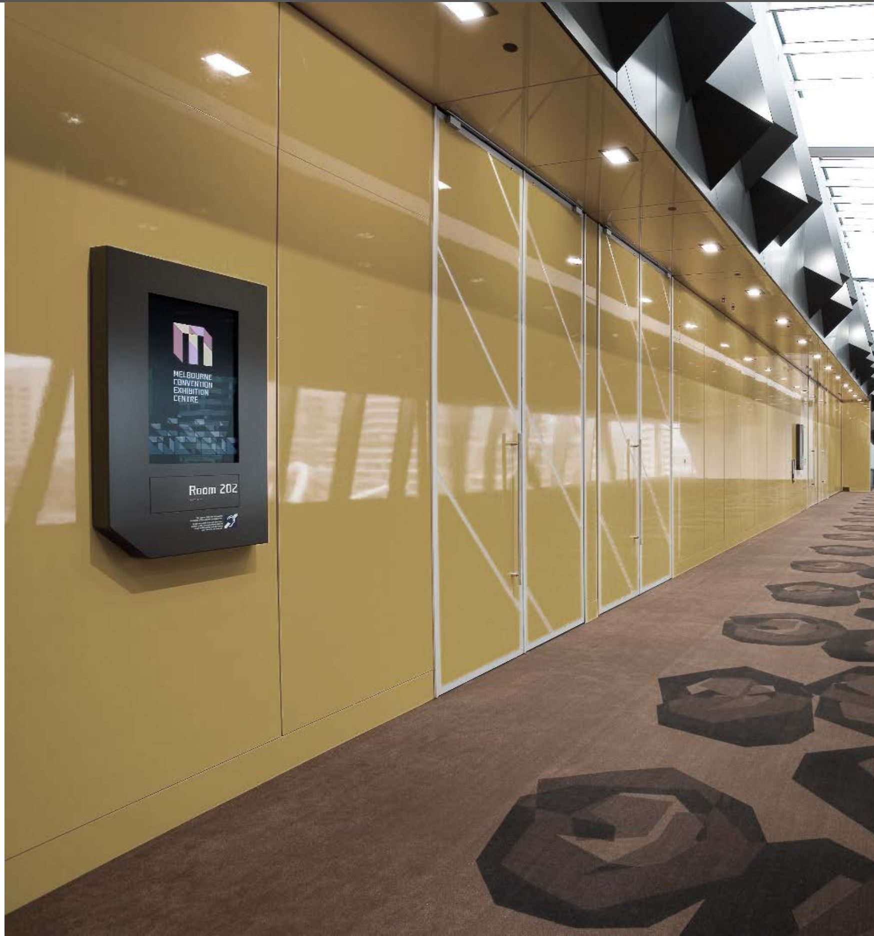
High Level Overview



The Solution

Network

- Converged Network
- Dante Network Protocol
- Local Dante Network (local Audio Sources)
- Global Dante Network (Paging, Recording, etc.)
- Performance Dante Network (Plenary 96k)
- Isolation of Dante Networks
- Network Redundancy

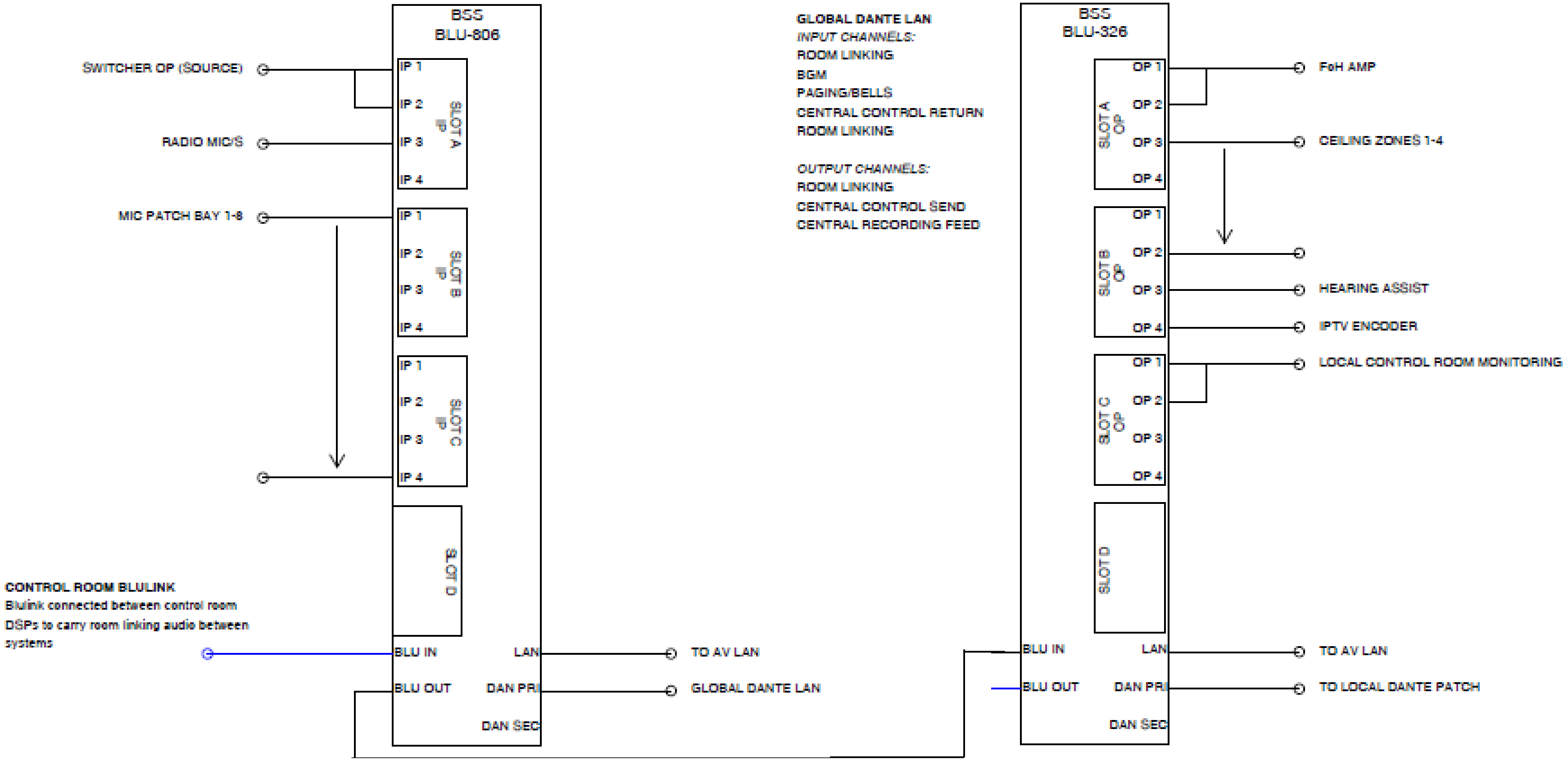


The Solution

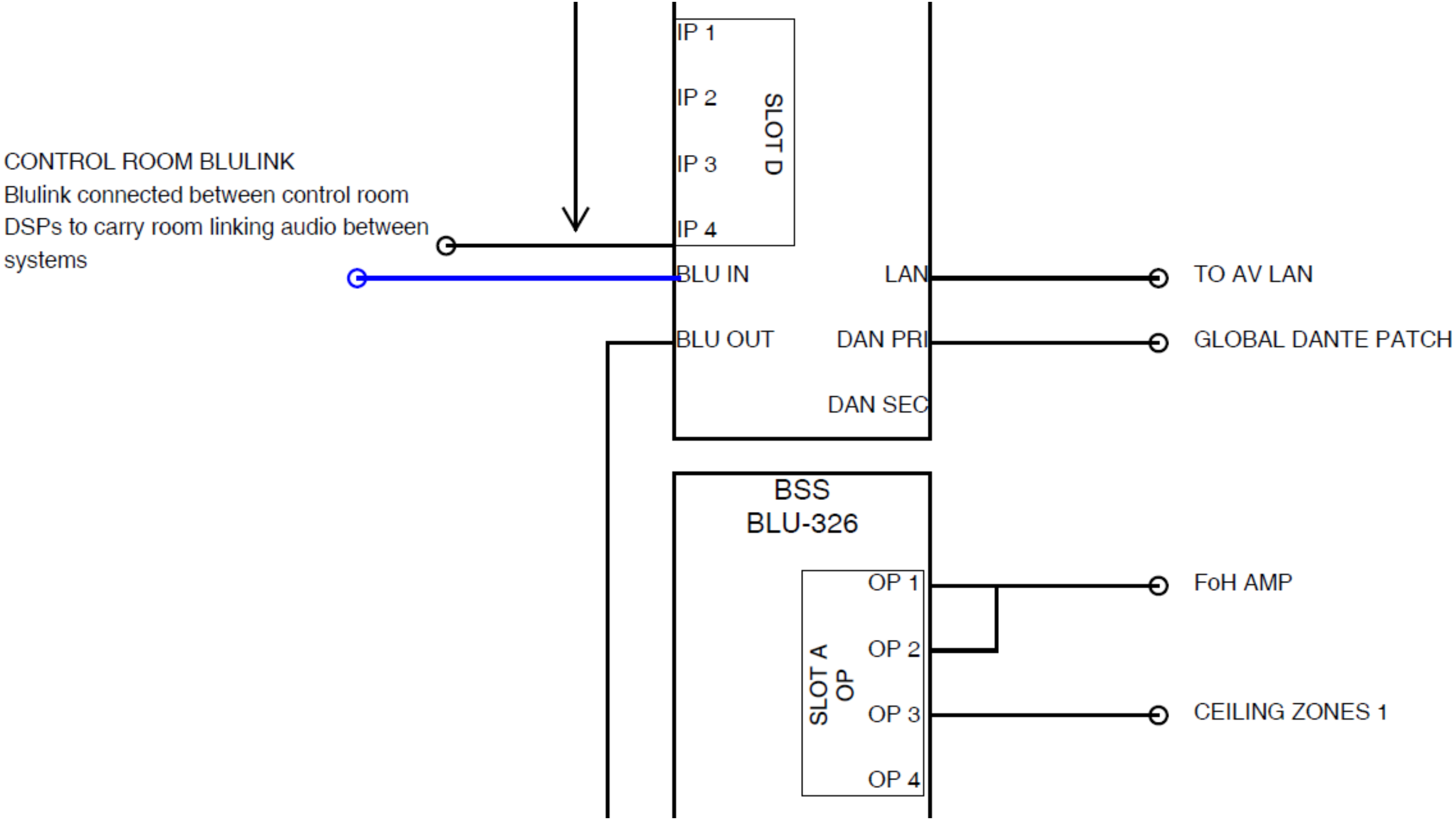
Room Services

- FOH / Ceiling System
- Mixer (FOH)
- User Source Management
- Digital Audio Tie Lines
- Recall Chimes

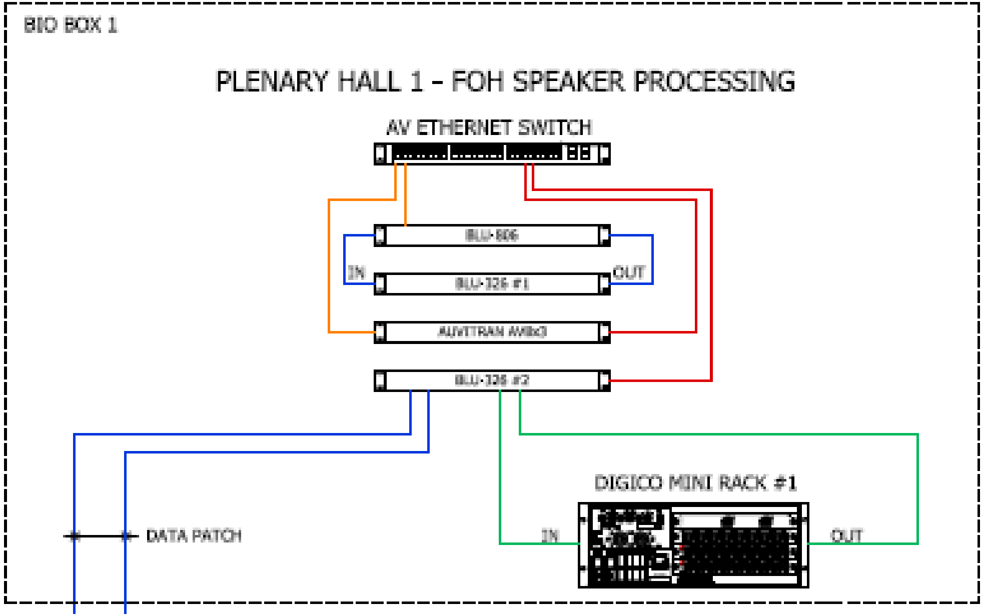
The Solution – Meeting Rooms



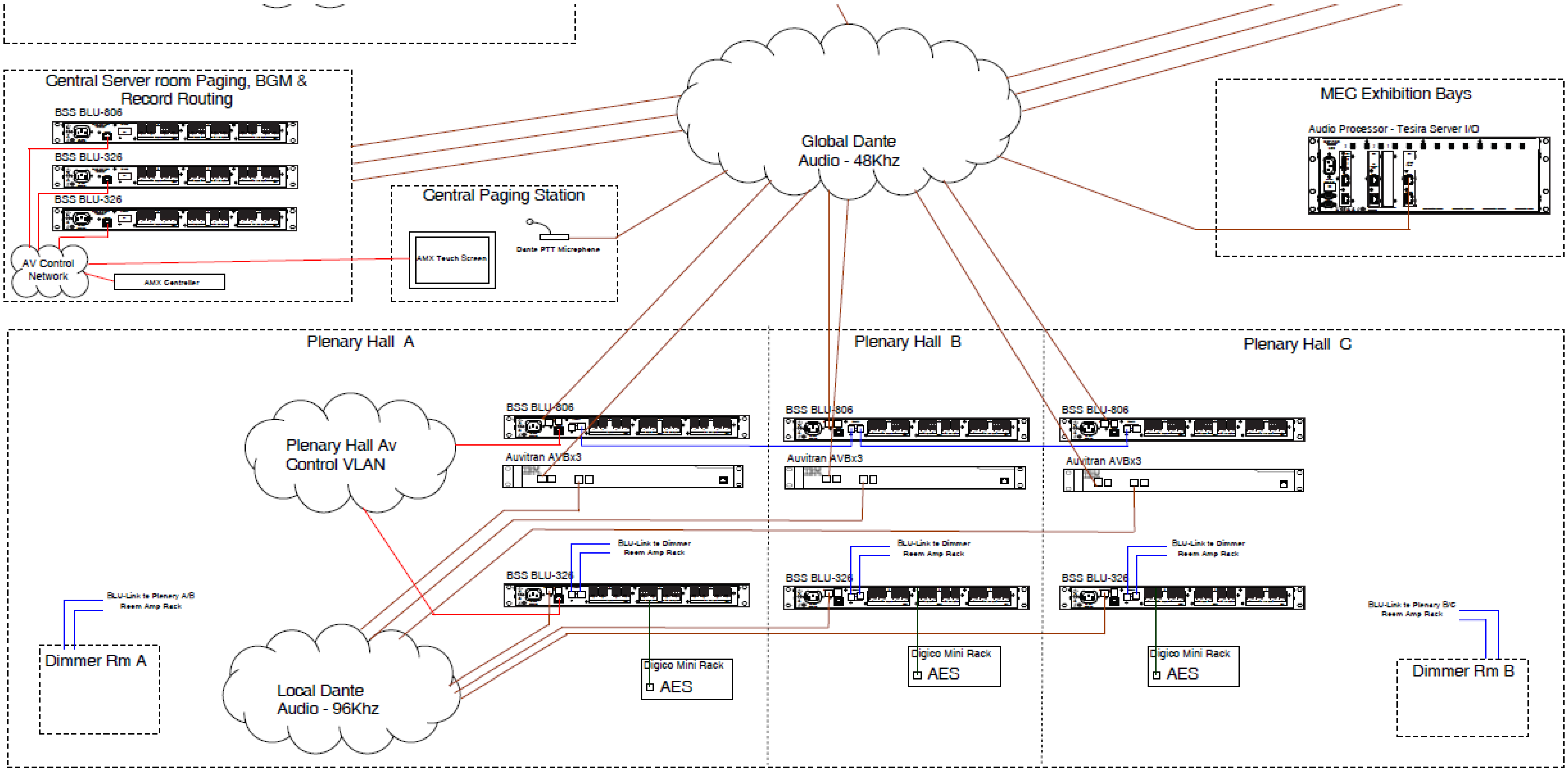
The Solution - Banquet



The Solution - Plenary

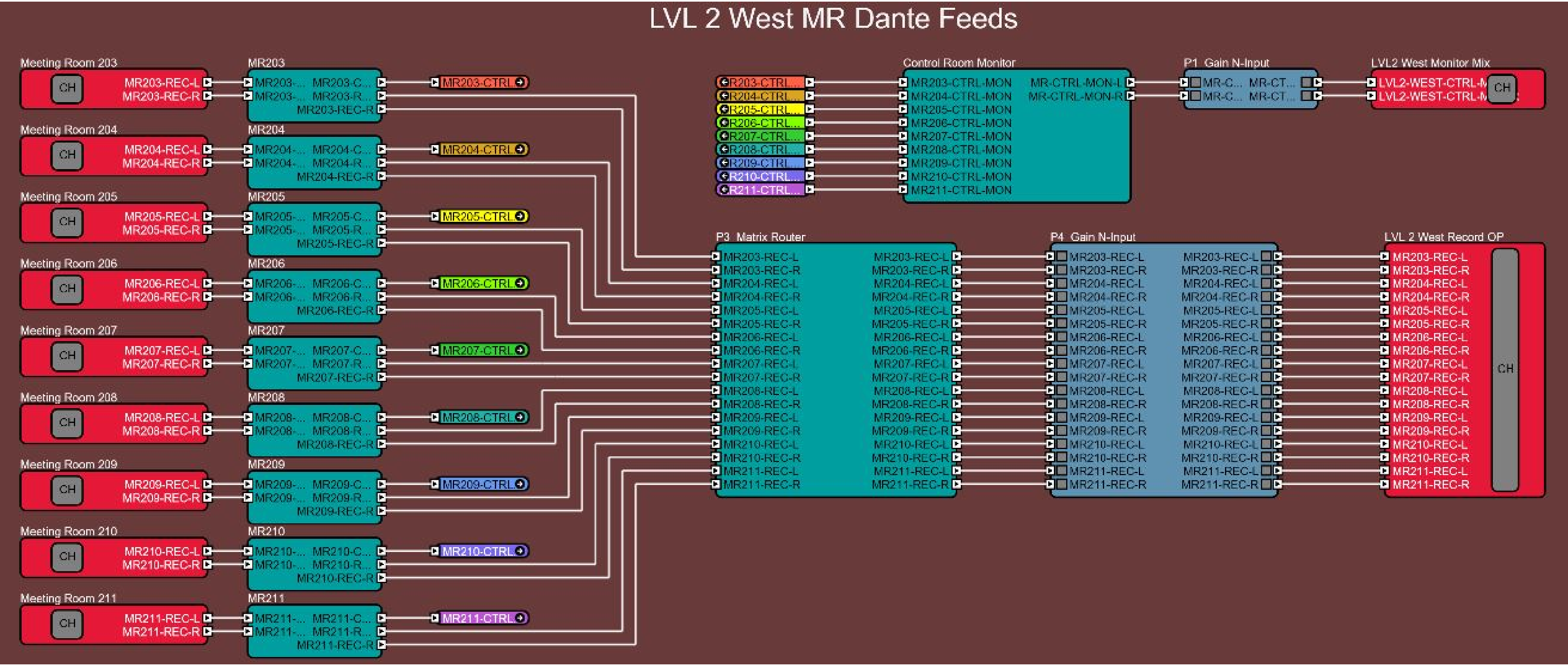


The Solution - Plenary



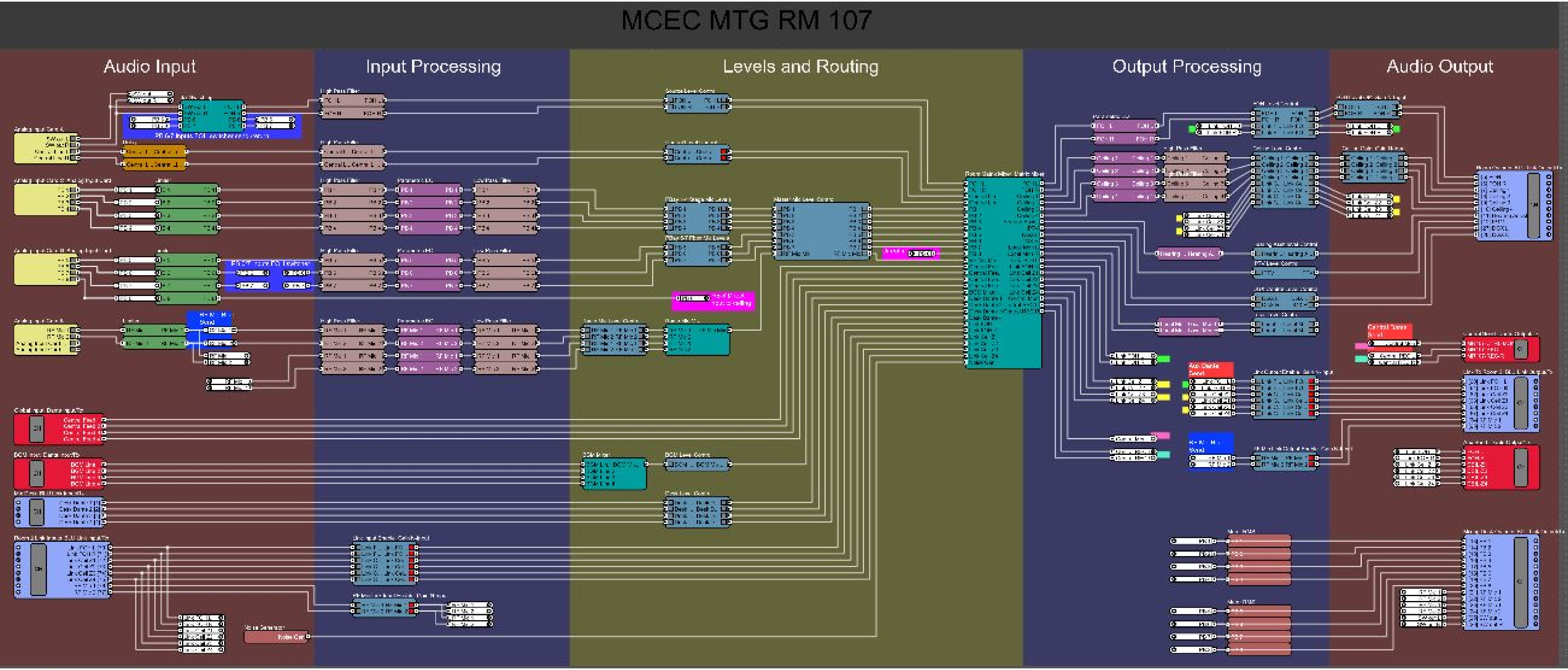
The Solution

BSS DSP Screenshots



The Solution

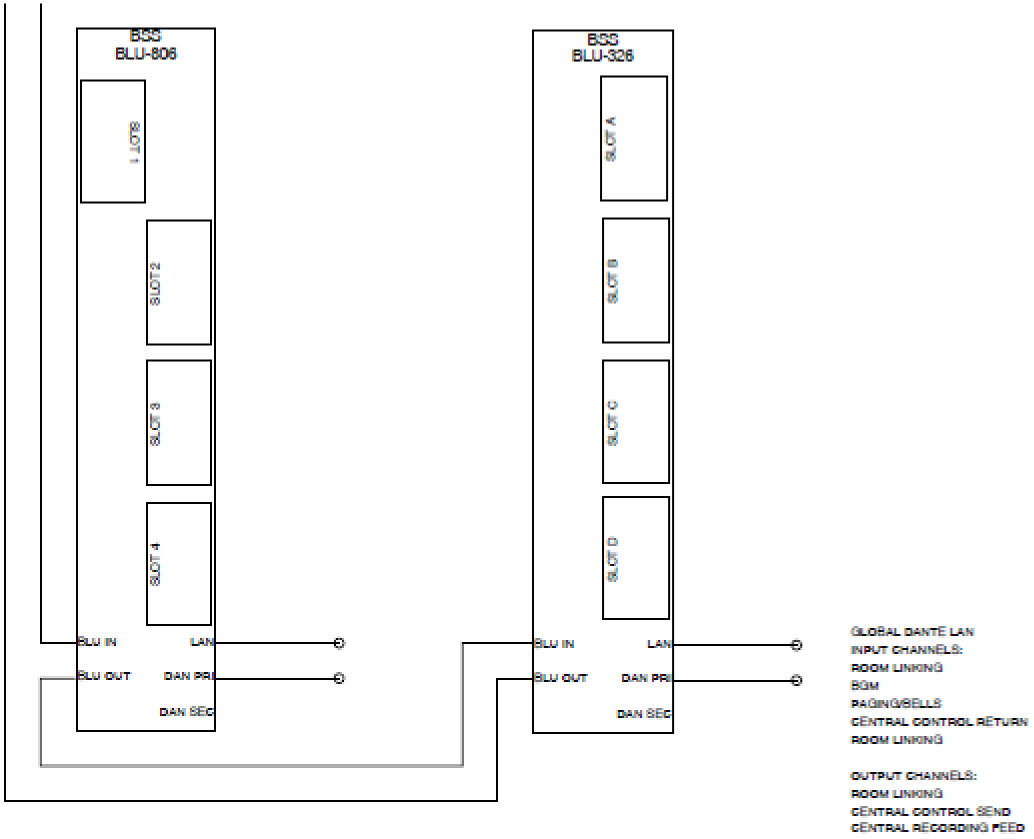
BSS DSP Screenshots



The Solution

Global Services

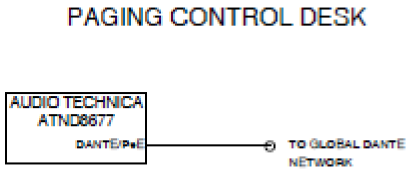
- Networked Audio (Dante)
- Paging
- Recording
- Monitoring/ Management (Master Control
- EWIS integration
- Central Routing (Server Room)
- Local Monitoring (Satellite Control Room)
- Room Overflow
- Digital Audio Tie Lines
- Room Linking



The Solution

Global Services

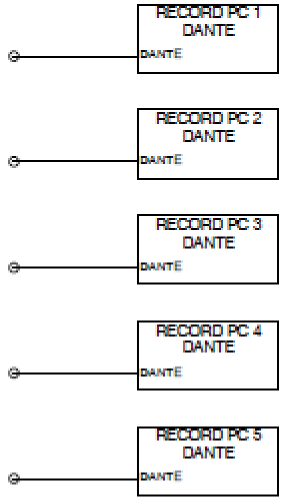
- Networked Audio (Dante)
- Paging
- Recording
- Monitoring/ Management (Master Control Room)
- EWIS integration
- Central Routing (Server Room)
- Local Monitoring (Satellite Control Room)
- Room Overflow
- Digital Audio Tie Lines
- Room Linking



The Solution

Global Services

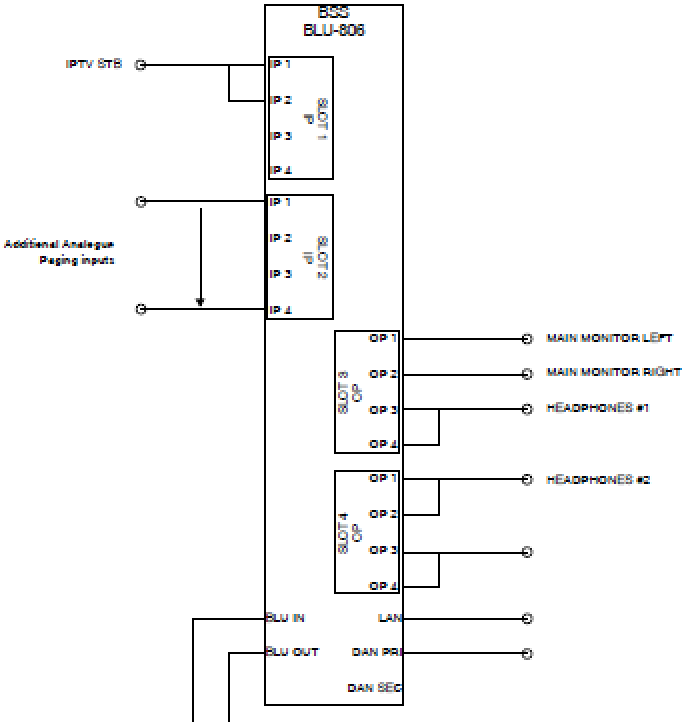
- Networked Audio (Dante)
- Paging
- Recording
- Monitoring/ Management (Master Control Room)
- EWIS integration
- Central Routing (Server Room)
- Local Monitoring (Satellite Control Room)
- Room Overflow
- Digital Audio Tie Lines
- Room Linking



The Solution

Global Services

- Networked Audio (Dante)
- Paging
- Recording
- Monitoring / Management (Master Control Room)
- EWIS integration
- Central Routing (Server Room)
- Local Monitoring (Satellite Control Room)
- Room Overflow
- Digital Audio Tie Lines
- Room Linking



The Solution

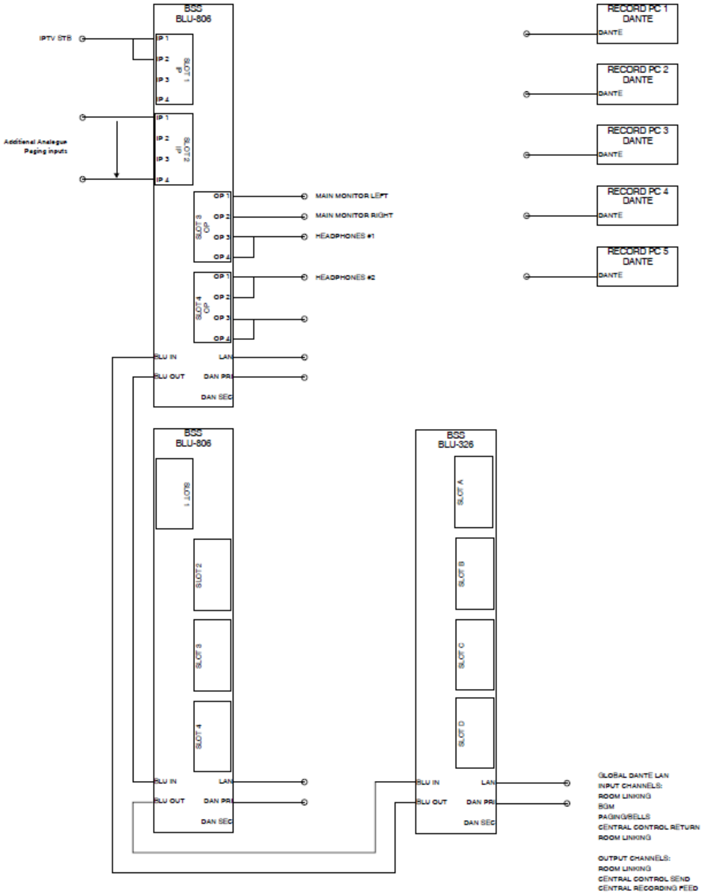
Global Services

- Networked Audio (Dante)
- Paging
- Recording
- Monitoring / Management (Master Control Room)
- EWIS integration
- Central Routing (Server Room)
- Local Monitoring (Satellite Control Room)
- Room Overflow
- Digital Audio Tie Lines
- Room Linking

The Solution

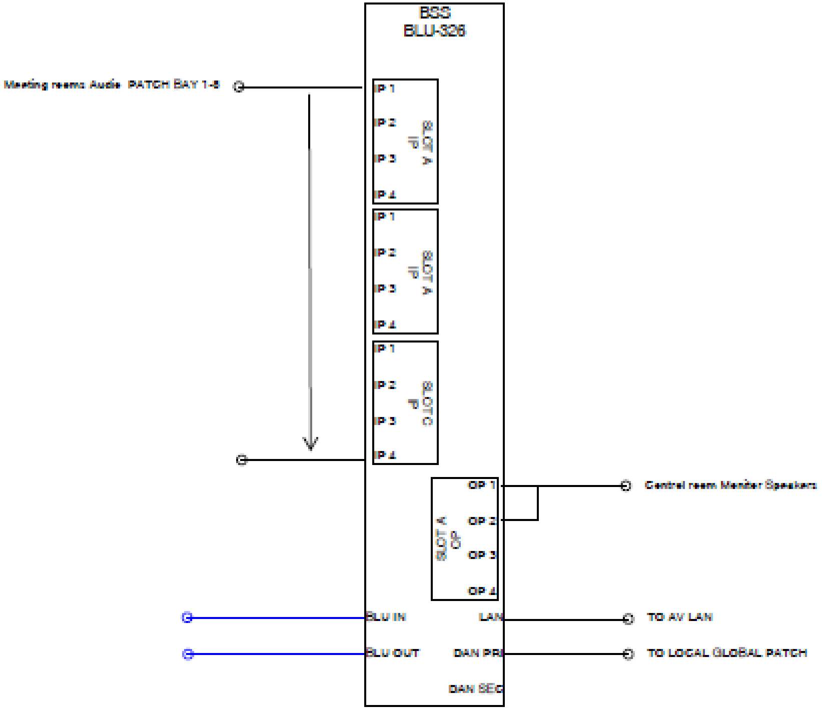
Global Services

- Networked Audio (Dante)
- Paging
- Recording
- Monitoring/ Management (Master Control Room)
- EWIS integration
- Central Routing (Server Room)
- Local Monitoring (Satellite Control Room)
- Room Overflow
- Digital Audio Tie Lines
- Room Linking



Global Services

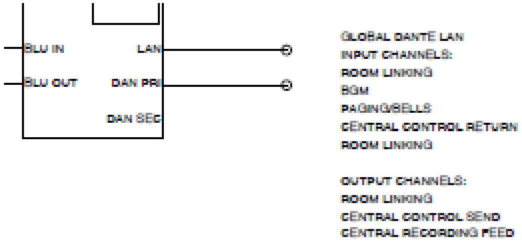
- Networked Audio (Dante)
- Paging
- Recording
- Monitoring/ Management (Master Control Room
- EWIS integration
- Central Routing (Server Room)
- Local Monitoring (Satellite Control Room)
- Room Overflow
- Digital Audio Tie Lines
- Room Linking



The Solution

Global Services

- Networked Audio (Dante)
- Paging
- Recording
- Monitoring/ Management (Master Control Room)
- EWIS integration
- Central Routing (Server Room)
- Local Monitoring (Satellite Control Room)
- Room Overflow
- Digital Audio Tie Lines
- Room Linking



The Solution

Redundancy - Resilience

- Redundancy built into Network Design
- BSS Contrio Server (DSP Backup etc.)
- BLU-Link loop topology
- Standardised DSP file for all DSP devices.

The Solution

BSS Contrio Server

<u>Advanced System Control and Scripting</u>

- Rich Palette of Logic Objects
- Lua-Based Scripting
- Hosting of System-Wide Presets & Cross-Device Links

<u>Centralized System Management</u>

- Self-Healing
- Event Log Aggregation

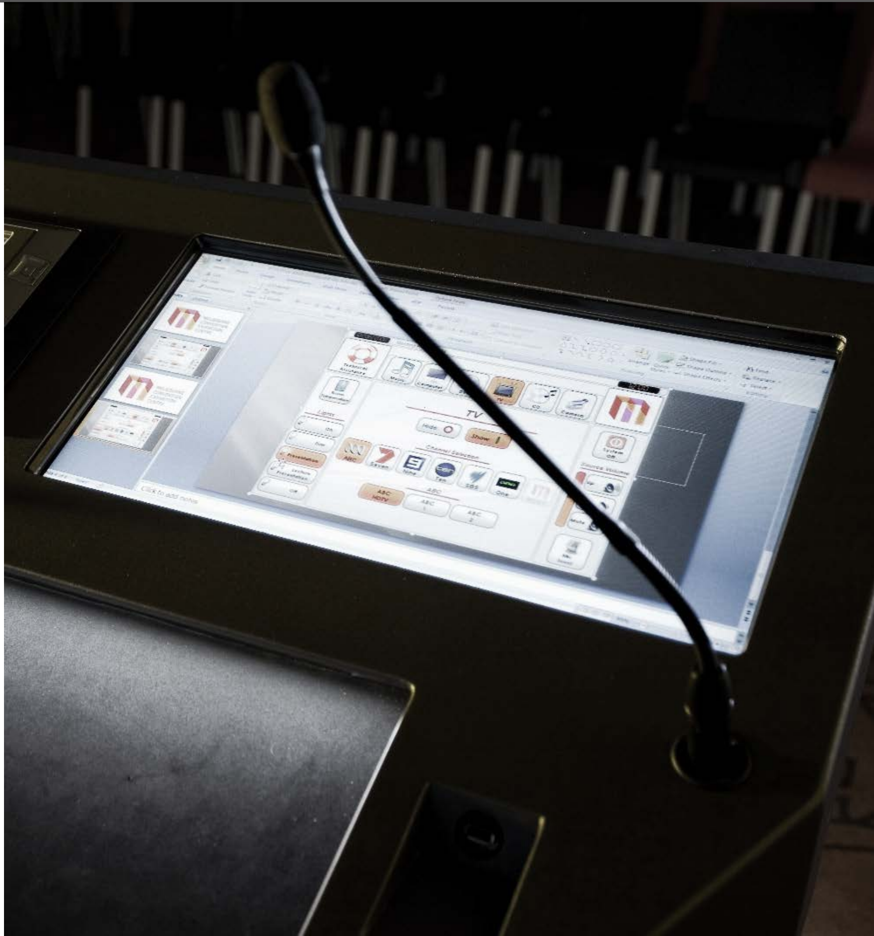
<u>Integrated Media Server</u>

- Simultaneous Playback of Multiple-Channel Audio Media
- Solid-State Hard Disk Drive
- Dante Virtual Soundcard

The Solution

Benefits – Flexibility - Efficiency's

- Standards based network topology
- Increased flexibility, connectivity, management and monitoring - via network
- Venue wide distributed audio over IP system



Questions?

rutledgeav
engineeringexcellence