

# AIRPORT CASE STUDY

## Company Profile

Jacques Technologies is a market leader in innovation, technological design, and development of integrated communication solutions. Our core competencies are in combining IP technology with decades of experience in audio and video products to produce flexible intercom, emergency, information help point and public address systems.

Jacques was founded in 1980. Our team of highly innovative professionals are driven by research and development to deliver the latest technology. In the early 2000's, we pioneered the use of IP technology within the intercom and public address space. Our solutions are efficient across endless market applications including – public safety, health, education, and secure facilities. Jacques IP communications systems are dynamic, efficient, and boasts an unrivalled use of true IP technology, ensuring scalability and design flexibility.

Australian designed and manufactured with an exceptional combination of hardware quality and software expertise, Jacques is ISO 9001:2015 certified. Jacques systems integrate seamlessly with many world class third-party systems. This sophisticated and intelligent integration to building and security management, telephony, CCTV and access control systems – combined with our true IP architecture – promotes infinite possibilities.

Jacques Head Office located in Brisbane, along with our international distributors export to worldwide markets. Our communication systems are installed in prestigious large-scale projects in Australia and globally.



# AIRPORT IP COMMUNICATION SYSTEM

Jacques IP communication systems are dynamic and efficient across endless industry applications. The system boasts an unrivalled use of true IP technology ensuring unmatched scalability and design flexibility. With the scope to achieve systems with an unlimited number of IP intercom endpoints and public address zones and with virtually unlimited configuration options; a Jacques communication system fits effortlessly into an airport application ensuring critical communication with car parks, concourses and security services are available 24/7.

The system, at its core, is a sophisticated and intelligent intercom and public address system which integrates via high level interface to many CCTV, building and security management systems providing crucial communication together with these services.

The Jacques IP communication system provides a seamless solution for airports. Core system features include:

## Simple installation

Jacques IP intercom devices connect directly to any port on a standard Ethernet network. Our IP devices support Power over Ethernet (PoE) ensuring power can also be supplied via the network. This allows for a simple plug & play installation.

## Flexible system architecture

Our system allows for virtually an unlimited number of intercoms, help point or public address endpoints to be connected, integrated and managed. Call hierarchy and system topology flexibility ensures complete control over system design.

## Unparalleled reliability

Jacques products are designed and manufactured in Australia from quality components providing excellent long-term physical, audio & video reliability. Our system architecture features a redundant controller framework that limit single points of failure, ensuring system robustness and site-wide reliability.

## Customised intercom design

Jacques provides customisation to our intercom panels. Flexibility is offered on elements such as intercom panel size, layout, etching, colour, button colours and options and speaker hole patterns.

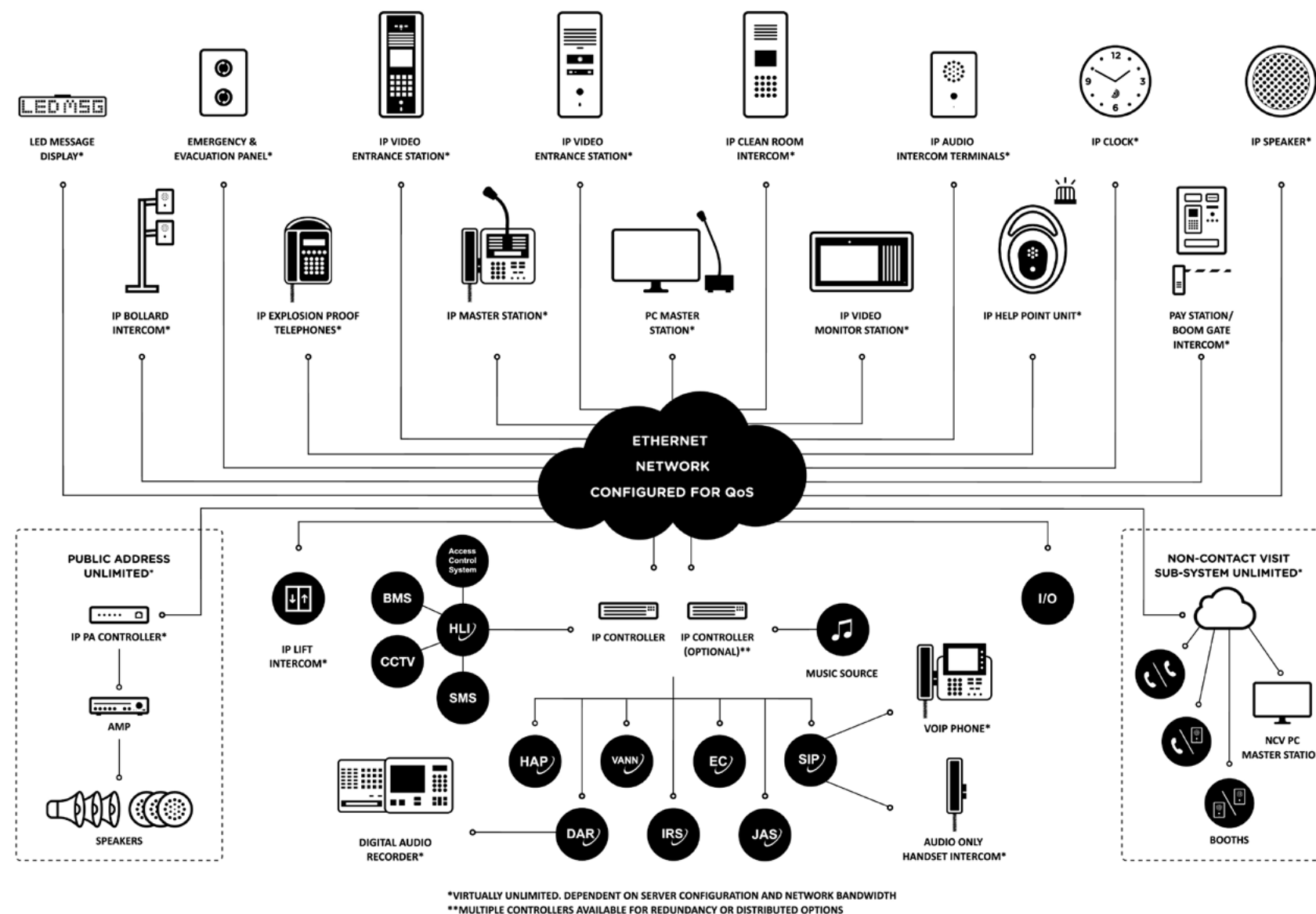
## Reporting & diagnostics

The Jacques IP communication system features advanced diagnostic and health checking capabilities which are logged and reported, in real-time, 24/7. The system continuously reports on over 320 events including configuration, call activity, device & system health status and faults. The system controller sends a heartbeat to endpoints every 5 seconds and reports on the result. This ensures that issues within a system are recognised instantaneously.

## Supported integration

Jacques IP communication systems integrate via high level interface to many industry recognised partners. Integration via HLI makes available events from Jacques' system to a client's application through event handlers. Integration with building and security, CCTV, telephony and access control systems ensure a complete security solution.

# System Diagram





## PROJECTS

### Jacques solution for Abu Dhabi Midfield Terminal

Jacques Technologies is proud to be part of the expansion of Abu Dhabi International Airport – the Midfield Terminal – a substantial size, three times the size of Abu Dhabi International Airport. Jacques solution utilises Ethernet Extender Module to extend the distance between the ethernet switch and field devices over 100 meters, highlighting the flexibility and capability of our system design capabilities.

Jacques integration with a third party CCTV system allows for the automatic switching of nearby cameras to view a help point unit when a call button is pressed. This allows for a security responder to view the situation via the CCTV system, while responding to the caller verbally.

### Melbourne Airport

Jacques Emergency Help Point Units are spread across Melbourne Airport in remote and multi-level carparks providing customers access to security services at the press of a button. The flexible architecture of a Jacques system means that even the remote car parks are managed at one central unit. Management of the communication system simplified via the Jacques Graphical User Interface (GUI). The customised GUI provides a visual display of each zone, with features including call answer, end, forward as well as the ability to make live public address announcements to one, many or all carparks.

Integration to CCTV via high level interface, allows the security team access to visual monitoring as well as communication across the entire carpark precinct.

### Perth Airport

The Jacques solution at Perth Airport consists of Jacques Public Address (PA) and Emergency Help Point Unit (HPU) system. Carpark across the airport zoned to provide flexibility in the distribution of live or pre-recorded announcements, depending on the requirement. Zone flexibility allows for the user to select one, several or all zones to transmit an audio message or announcement.

Help Point Units are each fitted with a siren and strobe. When a call is initiated at HPU, the siren will sound and the strobe will flash. When the call is connected, the siren will cease but the strobe will continue to flash until the call is disconnected. Strobes, sirens and other relay-triggered devices can be configured to respond on button-press or call state events.

Perth Airport also includes Jacques High Level Interface (HLI) integration to a CCTV system which allows for camera switching on button press events.







# TRANSPORT PROJECT REFERENCES

- Air Services Australia, various sites
- Butler Train Station, WA
- Broome Port Authority, WA
- Brisbane Busways, QLD
- BRT Sunway Bus Rapid Transit, MYS
- Canberra Airport, ACT
- Christchurch Airport, NZ
- CSIRO Investigator Research Vessel, TAS
- Darwin Airport, NT
- Darwin Port, NT
- Flinders Port, SA
- Freemantle Ports, WA
- Gladstone Ports, QLD
- Gold Coast Airport, QLD
- Goodwill Bridge, QLD
- Hamilton Railway Station, NSW
- Hillside Rail, WA
- Hobart Airport, TAS
- Johor Bahru Port Authority, MYS
- Mackay Port, QLD
- Melbourne Airport, VIC
- New South Wales Rail, NSW
- North Quay Rail Terminal, WA
- ORICA Port Headland, WA
- Parramatta Tunnel, NSW
- Perth Airport Car Park, WA
- Perth Rail, WA
- Port of Melbourne, VIC
- Port of Portland, VIC
- QAL Wharf, QLD
- Queen St Busway, QLD
- Sydney Trains, NSW
- T1 Sydney Airport, NSW
- Kurilpa Bridge, QLD
- Tasmania Ports, TAS
- Tasmania Rail Yard, TAS
- Toowong Bus Depot, QLD
- Webb Dock, VIC
- Wellington Airport Tunnel, NZ
- Wollongong Railway Station, NSW



# System Specifications

SYSTEM CAPACITY	
Intercom Stations	Unlimited*
Master Stations	Unlimited*
Stored Announcements	Unlimited*
Call Queue Size	Unlimited*
Groups	Unlimited*
Simultaneous Conversations	Unlimited*
Audio Communication Between any endpoint	Yes +
Auxiliary Channels	16 (typically up to 4 live captured sources)
AUDIO CHARACTERISTICS	
Frequency Response	200 Hz - 7 kHz ± 3 dB
Transmission Format	Real-Time Transport Protocol (RTP) Streaming
Digital Audio Format - Voice	A-law compressed PCM 16 kHz sampling rate
Audio Streaming Bandwidth	128 kb/s one way, 256 kb/s full duplex
Acoustic Echo Cancellation	Yes
VIDEO CHARACTERISTICS	
Multi-Standard Video Codec	MPEG-4 part 2, simple profile; H.264 baseline profile; H.263 part 3
Video Streaming Bandwidth	500 kb/s - 6 Mb/s
CALL HANDLING	
Call Topologies	Intercom/hierarchical/peer/public address/zoned
Call Priorities	256 priority levels
Call Features (Basic)	Auto-answer, hold, forward, diversion, directory, group call, caller-ID, bridged call appearance
Call Features (Specialised)	Isolate nuisance callers, covert monitor, dynamic group call, stored announcements, master call, remote mode, priority queuing, selective answer of call waiting
NETWORK	
Addressing	TCP/IP IPV4, static or dynamic (DHCP)
Interface Media	IEEE 802.3 10/100 Mb/s Ethernet
Standards	IEEE802.1P LAN Layer 2 prioritisation IEEE802.1Q Virtual LAN RTP - Real-Time Transport Protocol (RFC3550/3551) TOS - IPV4 Type of Service (RFC791) DTMF - RTP payload for DTMF digits (RFC2833) Multicast - IP Multicasting (RFC1112) Diffserv - Differentiated Services (RFC2474/2475) NTP - Network Time Protocol (RFC1305) IGMPv2 - Internet Group Management Protocol v2 (RFC2236) DHCP - Dynamic Host Configuration Protocol (RFC1531)
CABLING	
Power Input/Ethernet	4 pair UTP CAT-5/5e/6, multi-strand, 24 AWG - max. 100m

*\*Dependent on server configuration and network bandwidth*

*+Dependent on system configuration and permissions granted*

