



CORTEX™



Other CORTEX Functionality

Audio Recording offers instant playback and central archive recording facilities allowing a telephony or radio call to be re-heard to assist call management.

Alerts sound for incoming calls over a defined time period in addition to information and system alerts. Alarms requiring urgent attention require the operator to push the flashing icons, using the 'follow me' facilities, which leads them to the urgent screen so they can respond accordingly.

Personal Scratch Pad provides a free-text facility for operators to note information for themselves and allows direct dialling of numbers entered.

Global Scratch Pad is accessible by all operators and broadcasts important information which appears on an operators screen as a flashing icon denoting that new information has been posted.

CCTV feeds provide operators with real-time video images from cameras around town, helicopter cameras, security door entry cameras and commercial broadcast television.

External I/O Control extends CCTV capabilities further, providing general purpose input/output controls, such as interfacing to door release mechanisms and door entry requests.

Audit Trail Logging records configuration changes, telephone call information and alarms.

Web Browser facilities provide access to the internet and force intranet enabling easy access to knowledge bases and multimedia information resources. Telephone and radio directories are integrated to allow direct dialling through this interface.

Management Reporting provides customisable reports to be produced according to requirement.

Wallboard is supported (physical device or virtual on the workstation screens) displaying control room call statistics of calls waiting, connected, average and longest waiting times and total daily calls.

Maintenance Facilities provide backup and archiving options with supervisors forcing remote workstation rebooting and touchscreen re-calibration.

Fallback Operation ensures service continuity in the event of network failure or control room evacuation with a variety of scenarios governing response.

Multi-Lingual Support presents the language on the graphical user interface to represent the local language of the operator.

World Class Support Should things go wrong, APD can provide support on a 24 x 7 x 365 basis.

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Resource Location Systems

Linked to Automatic Vehicle Location (AVL) and Automatic Person Location (APL) systems such as APD's INCA™/Co-Ordinator solution, a complete end to end despatch system extends the reach of control rooms, harnessing both voice and data capabilities. Receiving real-time updates from GPS enabled radios and INCA, APD's GPS telemetry device, the location and status of resources is displayed on street-level detailed maps, improving the visibility of remote users from within the control room.

Operators benefit from the real-time updates, enabling the more efficient deployment of resources to site and accelerating incident response. CORTEX integration with resource location systems provides a solid platform to launch mobile data services, empowering officers on site to request their own enquiries, reducing voice traffic through a control room and allowing operators to focus on their role rather than conducting repetitive and time consuming tasks.



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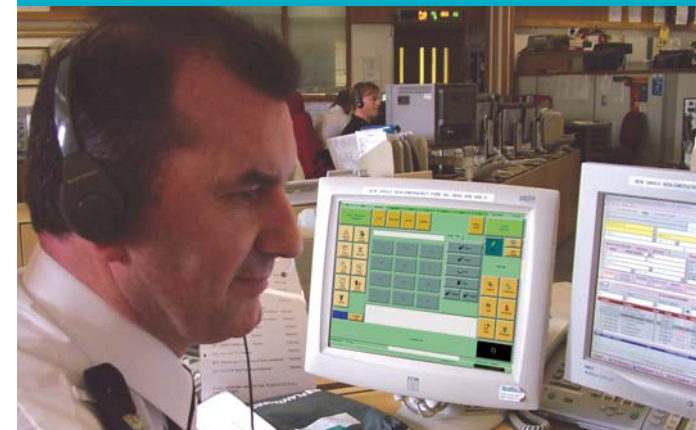
CORTEX™ is a TETRA-enabled Software Integrated Communications Control System (ICCS) used worldwide in mission-critical, emergency services environments. It seamlessly merges radio despatch, telephone call handling, video monitoring and web services, enabling control room operators to conduct their duties effortlessly in a stressful environment.

APD delivered its first system to Grampian Police in 1996 and has earned its reputation for deploying feature-rich systems compatible with legacy analogue and digital radio infrastructures. CORTEX customers include Swedish Police, Norfolk Fire Service, London Ambulance Service, Fife Constabulary and the Police Service of Northern Ireland, as well as nearly half of the Police Forces in England and Wales. CORTEX was the showcase ICCS application for the UK Airwave TETRA network, which went live in 2000 at Lancashire Constabulary and powered the first Multi-Agency Control Room worldwide at the Isle of Man during 2004, comprising sixteen organisations including: the Emergency Services and key Government agencies such as Transport, Forestry and Utilities.

CORTEX has been designed for users by users; with an active User Group ensuring features enhance working practices, helping to raise call handling performance and satisfy the police performance assessment guidelines. Intuitive to use, minimal training is required and operators are quickly operational managing voice and data traffic and accessing key information instantly on user-friendly

Key Benefits

- Greater control with more efficient communications and accurate despatch
- Increased officer safety through panic alarm monitoring and resource location services
- Service continuity assurance even during extreme incidents through distributed points of failure
- Raised quality of management information, audit trails and accountability
- Reduced training, equipment and associated servicing costs
- Enhanced force and cross-agency incident support
- Improved call handling performance to meet 'Policing Performance Assessment' guidelines



touchscreens. Multilingual support presents screens in the operator's preferred language. Feature rich, it provides them with the fine grained control of the new flexible resources that digital infrastructures provide, reaping the maximum benefit from the Force's investment. Features include: instant record/play back of audio, one touch dialling and dynamic dialling from searchable directories, web browser and audio level preferences. CORTEX embraces the full range of TETRA functionality; providing a profoundly flexible and scalable communications solution that empowers control room operators to manage incidents more effectively.

CORTEX offers a fully integrated control room suite, interfacing with Command and Control systems, APD's Resource Location and Mobile Data solutions. CORTEX uses industry standard technologies to deliver a resilient and fault tolerant system, essential in mission-critical environments. Its robust architecture delivers vital fallback connectivity, ensuring service continuity in extreme situations.

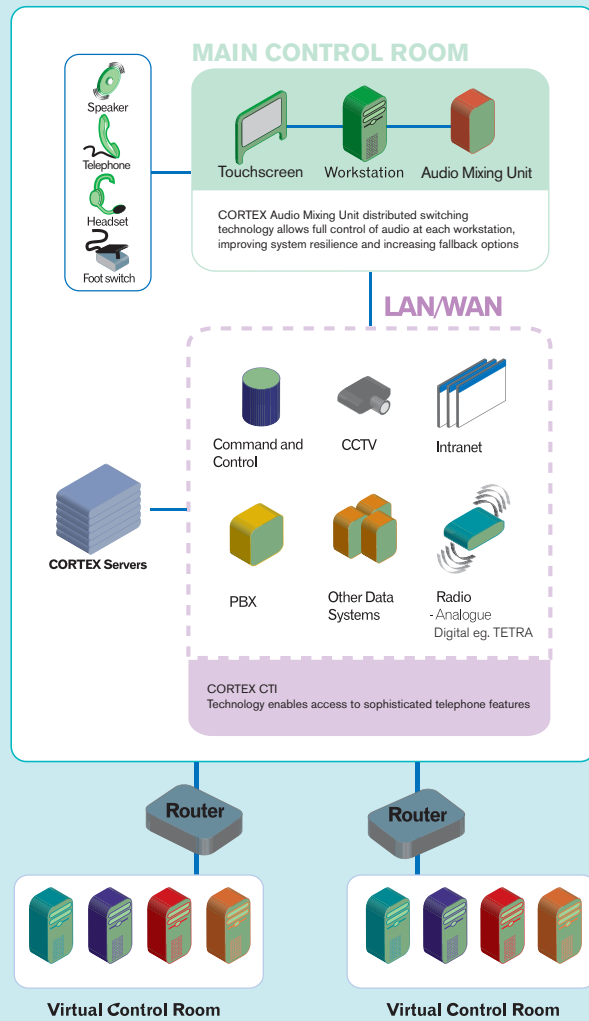
Key Features

- **Proven** – constant operational use across UK and overseas Emergency Services.
- **Highly Resilient** – dual server, fault tolerant system with inherent fallback capability with distributed points of failure.
- **Future-Proofed** – solid design enabling future integration of mobile data systems such as APD's POLARIS.
- **Interoperable** – automatic incident logging and dynamic dialling from command and control systems.
- **High Integration** – with multiple systems, Command and Control, APD's Resource Location Systems and other information systems.
- **Automated Routing** – delivers effective call handling, prioritising calls according to pre-defined roles and scenarios.
- **Effective Despatch** – dynamic updating facilities and information sharing accelerates incident response with resource location systems providing accurate GPS positions based on real-time information.
- **Secure Monitoring** – reassure officers of a rapid response to activated alerts which are automatically logged to produce audit trails.
- **Dynamic Working** – automatic dialling and creating talkgroups saves valuable time.
- **Multi-Lingual Support** – presents screens in users local language including right to left scripts such as Arabic.
- **Common Headset Working** – audio traffic converges into a single headset.
- **Minimum training** – user-friendly interface enables operators to focus on conducting their jobs.



CORTEX

Architecture



CORTEX is a modular system comprising a pair of redundant servers networked with operator workstations implemented in accordance with accepted industry standards. The CORTEX Audio Mixing Unit (AMU) combines telephony and radio audio feeds into a single headset displaying information onto a user-friendly touchscreen.

CORTEX provides centralised administration of user profiles, telephone directories, event logging and audit; control of analogue radio switch, CCTV switching matrix, centralised and local I/O Devices; wallboard hosting; alarm management; client software distribution, administrative functions such as Eavesdrop and extensive TETRA functionality.

Screenshots

Telephony



Phone Book Search Result



Multiple Call Queue Presentation

Radio



Talkgroup Selection



Short Data Service (SDS) Text Template

Audio Mixing Unit (AMU)



Personal Audio Levels



Alarm

CCTV



CCTV Feeds



Web Browser



Operator's Environment

Hardware

Operator's are equipped with a networked PC, desktop speaker, touchscreen, PTT footswitch (for Push-To-Talk functionality), CORTEX Audio Mixing Unit (AMU), headset junction box and operator headset. The AMU provides routing, mixing and level balancing of audio, adjusted by the operator and these preferences are automatically loaded at the start of a duty to make the workstation operational, quicker.

Workstation Interface

CORTEX software is presented on the touchscreen which allows operators to toggle easily between telephony and radio screens with the key functionality framing a central operating window. Colour coding is assigned to differentiate priority traffic and tones denote various alarms with 'follow me' functionality directing operators to an emergency alarm from another part of CORTEX. A VU meter indicates to operators that their microphones are working and that their voice is creating the correct modulation to be heard by the receiving radio or telephone.

Roles and Scenarios

Determine the correct resources required for a user's duty, ensuring operational events are routed to the correct operator. Scenarios can be pre-configured by a combination of standard duties, incorporating geographical areas, special event planning and are flexible enough to cater for major incidents.

Functionality

Telephony

Integrated with a private branch exchange (PBX) and, optionally, automatic call distribution (ACD), CORTEX presents incoming calls in definable call queues routing them directly to a workstation or auxiliary ACD system. Forces opt to implement their incoming call handling appropriate to their style of working, with call management rules and colour coding denoting the priority of calls.

Call queuing arrangements vary from displaying all calls detailing priority and length of unanswered call, to a stacking facility where the number of calls is displayed in a single or priority divided stack. Standard call handling practices for connecting, holding and transferring calls are offered with additional call parking, intrusion, listening facilities, intercom and conferencing to external numbers improving call management.

Outgoing calls are easily made using a variety of on-screen facilities including: phone directories, redial list of the last fifty numbers, searchable phone book, numeric keypad in addition to intercom calls.

Unanswered calls trigger an alarm to alert operators and supervisors. This may result from pure volume of traffic or workstations not being ready to accept calls. Supervisor privileges allows the management of 'in-progress' calls.

Radio

CORTEX facilitates the management of talkgroups according to the operator's role and scenarios. Operators transmit and receive voice traffic, exchange short data text messages, status messages, are notified of emergencies and use Push-To-Talk (PTT) facilities. Operators manage single or multiple talkgroups, connecting and removing talkgroups according to need, using the aliasing facilities to connect rapidly to officers in the field.

Various states are assigned to talkgroups requiring different levels of interaction from event monitoring to receive and/ or transmit in audio monitoring. Colour-codes highlight the different states with highly visible emergency alarms drawing an operators' attention.

The use of 'Dynamic Group Number Assignment' (DGNA) allows operators to dynamically manage talkgroup membership, creating effective operational groups. This is essential to maintain control in an emergency situation where a number of officers may need to communicate exclusively with each other.

CORTEX provides search facilities to lookup radio users and produces activity logs. Operators call remote users from a dial pad, radio book or redial list. Additionally, data services provide simple status messages (call-back requests, alarm and operational statuses) and short text messages (send and receive). Supervisor's privileges enable radios to be stunned and un-stunned connecting them back to the digital network. CORTEX provides backward compatibility with Analogue radio infrastructures.

Command and Control (C&C)

CORTEX is tightly integrated with C&C systems. Incoming '999' calls automatically populate C&C systems with caller details, displaying information for the operator. Outgoing calls may be made directly from C&C systems through CORTEX. Call statistics provide valuable information relating to emergency telephony traffic.

CORTEX TETRA Gateway

TETRA Gateway provides dynamic aliasing facilities that enable operators to seamlessly communicate voice and text exchanges with officers. Users view radio user's call signs, collar numbers, in addition to the radio ID. Talkgroup affiliation provides a mechanism to know accurately which radios are in use and the talkgroup they are on. SDS text and status messages are exchanged between radios and command and control system.