real-time

Airport Solution

extend your view

TERRA 4D

TERRA 4D – The innovative software platform which immediately takes you to the next dimension in security management. It solves any unanswered questions related to airport security and safety. Why settle for less?

TERRA 4D airport solutions offer advanced features that support security operators to assess and resolve incidents efficiently. Features like multiple camera object tracking, time machine, workflow and incident reporting, localization and dispatching are a few of many helping operators to react immediately and efficiently on security incidents. Thanks to the 3D GIS model the intuitive and field-approved user interface provides superior situational awareness in all circumstances.

TERRA 4D platform links airport systems and sub-systems seamlessly together. This integration and unification of all subsystems enables acquisition and analysis of all information as one central entity to allow comprehensive and effective protection.

TERRA 4D Physical Security Information Manage-ment (PSIM) solution facilitates incident detection, security and safety related incidents, presenting the complex information in a simplified geographical context to operators, therefore offering them with superior situational awareness.
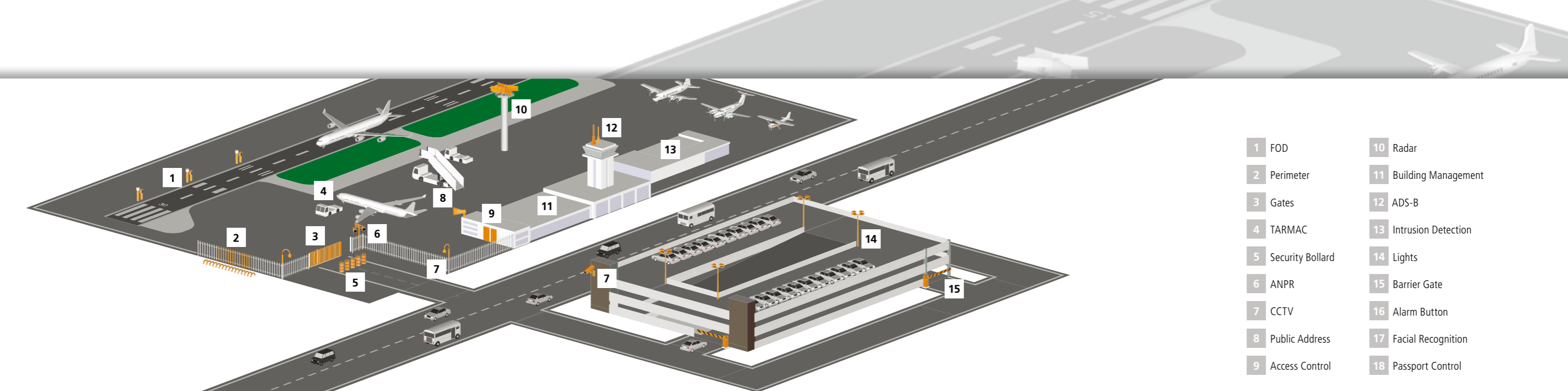
1	FOD	10	Radar
2	Perimeter	11	Building Management
3	Gates	12	ADS-B
4	TARMAC	13	Intrusion Detection
5	Security Bollard	14	Lights
6	ANPR	15	Barrier Gate
7	CCTV	16	Alarm Button
8	Public Address	17	Facial Recognition
9	Access Control	18	Passport Control

TERRA 4D translates unstructured sensor and system data into structured data and displays it in a geographical context, offering superior real-time situational awareness. Gathering enough data and patterns gives greater insight into content and allows content analytics to make a faster correlation, assisting safety officials in their decision making, identification of the correct protocol, availability of resources and when and where they should be deployed. Operators at Airport Security, Law Enforcement, Transportation or Emergency Agencies can fly through time and space having virtual "eyes-on-the-scene".
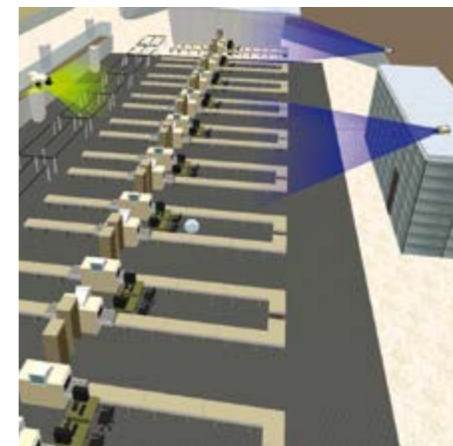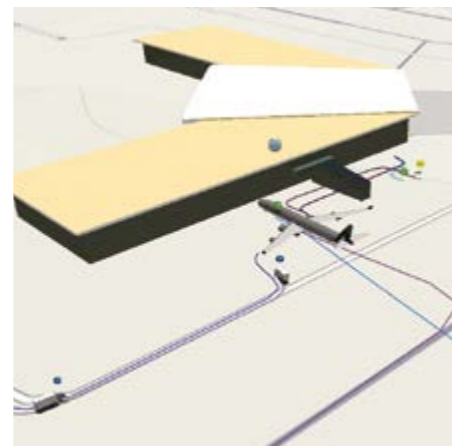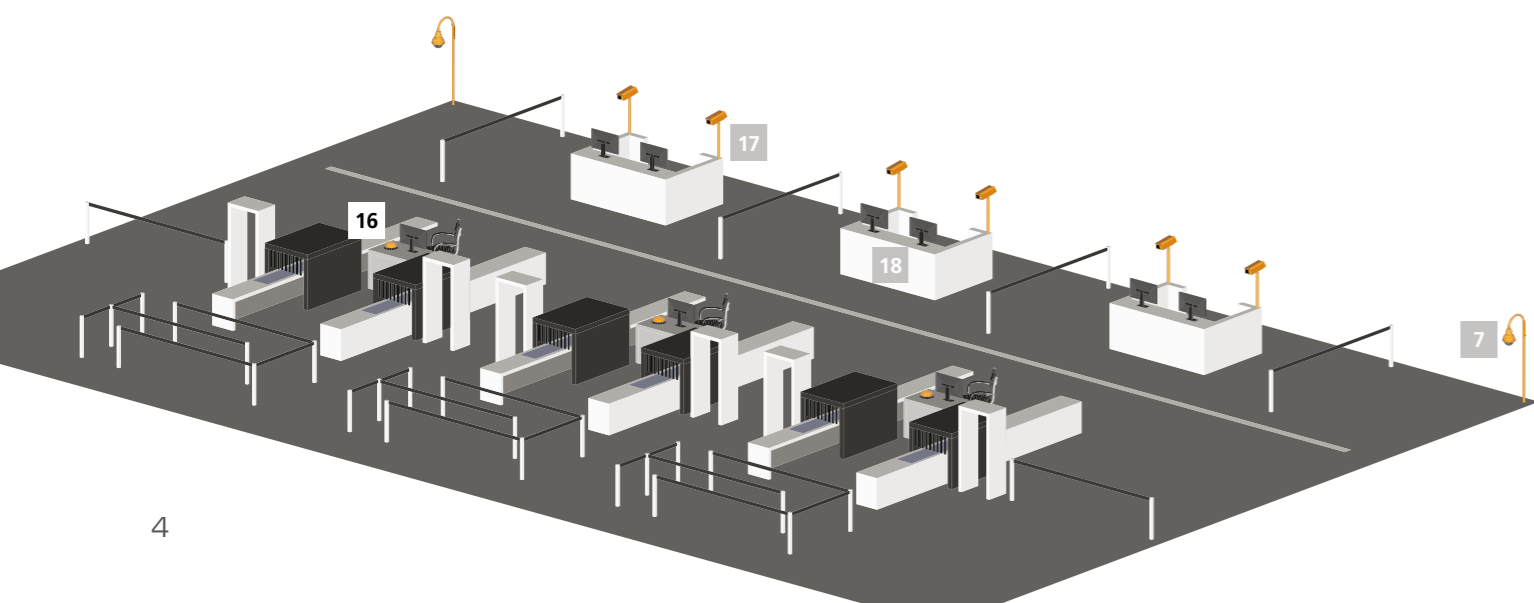

Screenshots TERRA 4D Interface

Today's airports face new challenges which have far-reaching consequences for all operators in every area of the airport, it is therefore essential to adapt appropriately. A knowledge based approach is required to achieve greater operational efficiency, improve environmental performance and address security vulnerabilities.

TERRA 4D PSIM solution is designed for airports that need to reduce the risk of disruption to their operations while providing an improved service to passengers.

The need for comprehensive solutions to assure quality, security and safety is addressed by TERRA 4D Airport:

- Integrating operation applications into a single platform to manage complexity
- Improve situation response times and minimize risk

- Improve over-all efficiency and passenger experience
- Common operating picture to enable rapid situation awareness, management and real-time resolution
- Geo-reference and correlate data from multiple security and safety subsystems and other systems to resolve a situation
- Integrate multiple video solutions seamless on one operator platform
- Collection, collaboration and sharing of information
- Intuitive workflows remove operator randomness, reduce stress for the user during an incident and enforce company's compliance guidelines

Network

Redundant Server

**Config.
Database**

Redundant Server

Master Server | Incident
Database | AQ Server 1 | AQ Server N

Recording
Database

**Config.
Database**

Master Server | Incident
Database | AQ Server 1 | Recording
Database

**Config.
Database**

**Incident
Database**

**Recording
Database**

Master Server
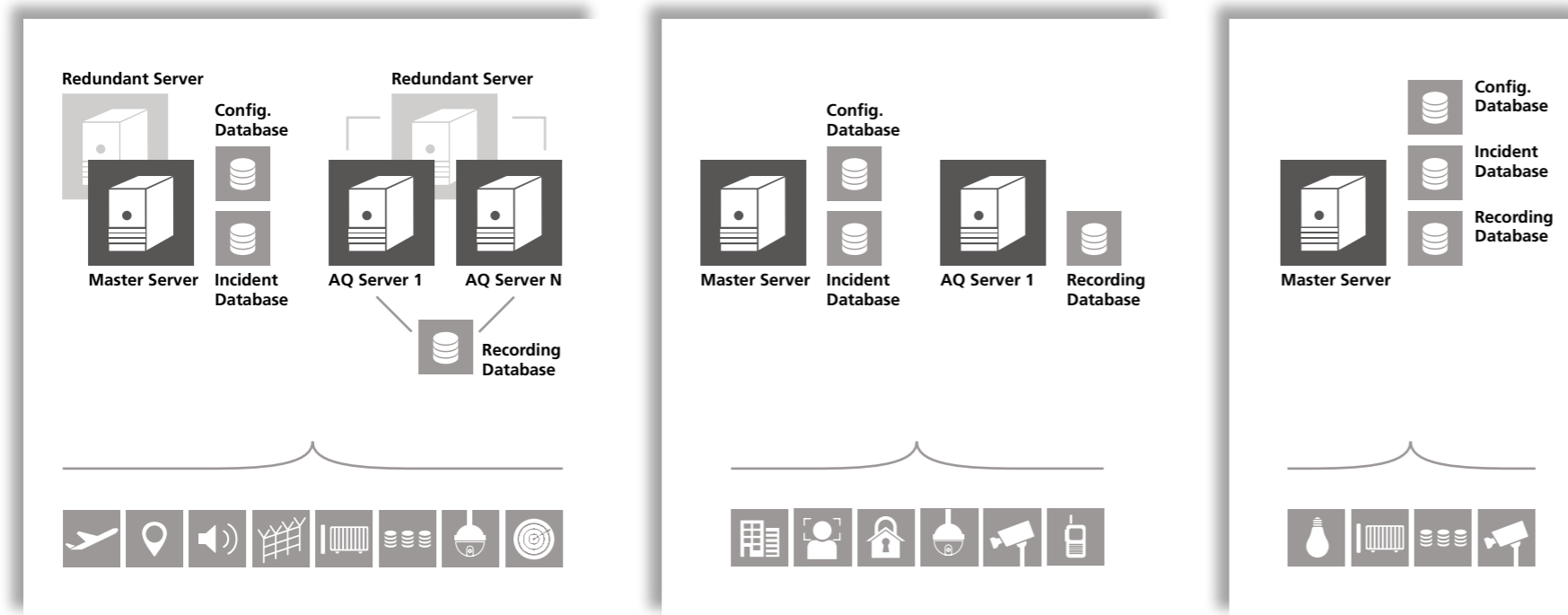
Site 1
Landing Field & Outside

Site 2
Baggage & Passport

Site 3
Parking

The graphic shows an example configuration.
The system architecture of TERRA 4D allows
adaption for almost every solution requirements:

• Scaleable from compact to large sites
• Support of multiple site operations
• Autonomous site operation
• Redundancy to avoid single point of failure
• Designed for multiple agencies usage
• Reliable and secure architecture
• Centralized user access management
• Cross client chatting
• Selective data exchange

Situational Awareness

With Terra 4D users interact with the software
through a graphical 3 dimensional model of their
site upon which object icons are plotted in real
time providing immediate situational awareness.

CCTV/Multiple Sensors

By combining multiple sensors into one intuitive
enterprise view, operators can identify and track
objects and events while maintaining a global
view of their entire site, rather than watching video
screens from any single camera. Operators have
selective access to live video from a multitude of
CCTV cameras, giving operators "eyes-on-the-
scene" in the vicinity of an incident.

Live/Recorded/Contraband

Live and recorded video, access control, fire
alarm and intruder detection systems data can
be accessed and correlated with passenger lists,
aircraft positions (ADS-B) and more. Terra 4D
offers "classified" applications using geo-spatial
analytics to detect and intercept incidents before
they turn into a threat. This data supports inves-
tigations in immigration crime and human rights
violations, trafficking of weapons and narcotics,
human smuggling and other types of contraband,
financial crimes and export enforcement issues.

All documented/Sensors

Terra 4D monitors and documents all activities at
check-in, passenger screening, security check-
points and baggage inspection. It supervises TSA
officers during their internal and external inspec-
tion rounds throughout the airport buildings and
even tracks their movements via 'up close' video
footage. All information is represented in the 3D
GIS model.

Immediate Access

In case of an incident, the system selects the clos-
est cameras to be displayed in the salvo and may
even control PTZ cameras to capture the scene.

Landing Field/Outside

Based on ADS-B and/or ground radar Terra 4D
Airport knows the position of all equipped vehicles
on the tarmac. It is capable to track vehicles on
ground and even in flight by PTZ cameras. Tem-
porary blocked areas are defined in the 3D model.
Any violation will lead to CCTV auto-tracking and
will set off an alarm at ground control. If a mode-s
receiver detects emergency, radio failure or high-
jacked status, the system initiates CCTV auto-
tracking documenting the landing and taxiing
phase until standstill. All meta data and videos
are available for time synchronized playback.

Command and Control

Video wall	Support of video walls and multiple screens per desk.
Time machine	Use the player control to navigate through space and time and see all recorded data (video, tracked objects, PTZ positions, …) time-synchronized.
Workflow and incident reporting	The intuitive workflows remove operator randomness, reduce stress for the user during an incident and enforce company's compliance guidelines.
Locate, Dispatch & Intercept (Engage)	The coordinates of any object seen on video or from a location in 3D GIS model can be converted into a target waypoint and sent to "closest" intervention team to target position.
Spacial data correlation	Any sensor can be used to control additional sensors. Example: A radar detects an object. TERRA 4D allocates the closest cameras with line of sight to the target and initiates automated multi camera tracking.
Geospatial rules engine	Defines rules and methods enabling auto-respond to incidents.
Layout Independent Program (LIPO)	Keep system maintenance up to date: removing, adding or moving a sensor needs only a deletion, add on or correction of sensor coordinates. No system reprogramming required!

3D Visualization

Multi Layer GIS with real-time rendering engine	Digital Terrain Model (DTM), Ortho imagery (aerial or satellite images), Street map, 3D buildings.
Geocoder	Address search, Forward: type address and GIS shows location, Backward: show address for any clicked location in GIS model.
In- and outdoor visualization	3D buildings and man made constructions are shown in the 3D GIS model. 2D CAD floor plans can be imported to visualize indoor environments.
Geospatial document library	Enables practical organisation of the document library (document is placed at geographical location) and easy access to relevant files according to user privileges.
Object track visualization	Trace the start of an object's movement. Complete historical track is visualized in 3D GIS model.
Video wall	Live or time synchronized playback video is "projected" on virtual video walls in 3D GIS model. Sensor orientation and view area is also shown.
Avatar	Represents a detected object and its class in the 3D space.
AIS, ADS-B, GPS meta data	Shows meta data attached to an Avatar. Example: AIS delivers unique vessel ID – TERRA 4D shows last captured image of the vessel and its AIS data.

Video

Supported cameras	Analog (with encoder), IP, fixed, PTZ, 360, mobile or airborne.
Position dependent salvo	Shows closest cameras to a static or dynamic object location.
Direct PTZ control	Video latency compensating method to control any PTZ device fast and precise.
PTZ auto presets	Automatic configuration of all interesting locations in PTZ camera's field of view as PTZ preset positions.
Geo-referenced video	Determine object location (latitude, longitude, height), speed, direction and size from video image.
Meta data recording	PTZ head data are recorded.
Multi camera tracking	Follow a moving "tagged"(GPS, RFID, AIS, ADS-B) or "untagged" object even in crowded environments using one or more fix or PTZ cameras simultaneously. If altitude information is available even airborne objects can be tracked from the ground or an airborne position.
Augmented reality	Augmented reality layer on top of video image display including context sensitive interactions.

Mobile Interception & Tracking

Panther for iPhone	GPS tracker and target interception app. Target waypoint is received and independent target interception based on bearing and distance is possible.
Dispatching	Get current positions of all units in the field and send units to target coordinates.
Geo fencing	Define geographical alarm or warning zones to receive alarms when tracked objects enter or leave such zones.

FAST Protect AG

Alte Steinhauserstr. 1
6330 Cham
Switzerland

Tel   +41 41 561 60 10
Fax   +41 41 561 60 11

FAST Protect GmbH

Siemensstr. 16/1
88048 Friedrichshafen
Germany

Tel   +49 (7541) 950 177 0
Fax   +49 (7541) 950 177 1

solutions@fastprotect.net
www.fastprotect.net