

Aspen

Environmental Monitoring Platform

Aspen is a distributed open-architecture platform designed to provide comprehensive environmental data collection and processing. Aspen always uses the latest developments in sensors, digitizers, communication, and computer networking technologies, along with recent findings in earth sciences research like Earthquake Early Warning System.

Since it is built around the data-neutral principle, the Aspen platform represents a new paradigm in environmental monitoring. It is ideal for monitoring seismic events from a closely-spaced array over local, regional, and national networks to global aperture.

The concept of open architecture is central to the Aspen platform because it will not only support your current requirements but can effortlessly adapt to meet future needs.

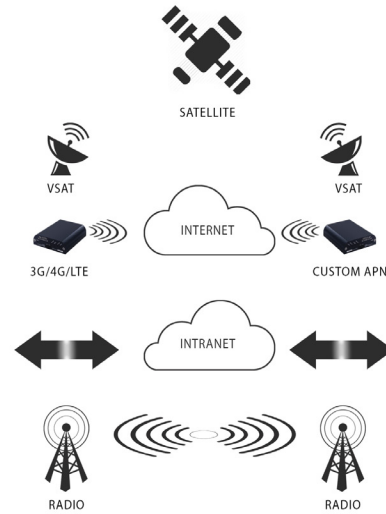
Aspen Field Station

At remote sites, the Aspen Field Station consists of one or more sensors, Quanterra and/or Kinemetrics datalogger, power subsystem, and the communication interface.

The communication interface transfers continuous and/or on-demand data to the designated Aspen Data Centers using standard duplex serial interface or typical TCP/IP Level 4 protocol over any available communication hardware.



ASPEN FIELD STATION



ANY COTS COMMUNICATION DEVICES

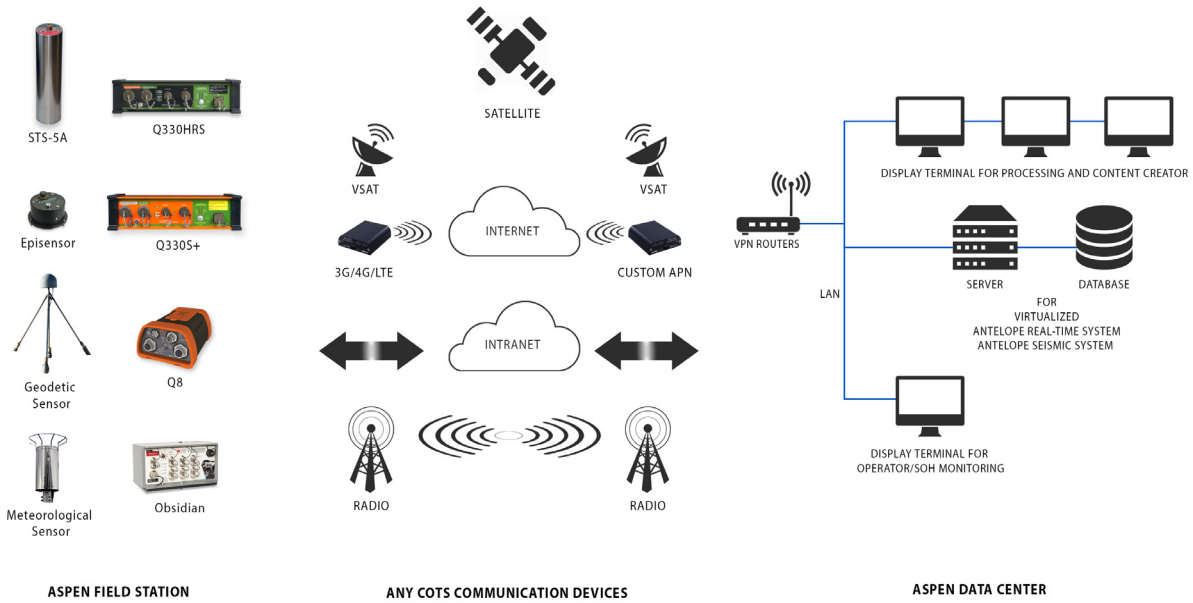


FEATURES

- Open-architecture modular design concept throughout
- Distributed real-time and on-demand data acquisition and processing capability
- Unique data neutral and entirely data-driven architecture
- Highly configurable and adaptable to any environmental monitoring system requirements
- Tie-in capability of virtually any seismic network in the world
- Lowest processing latency, suited for earthquake early warning systems (EEWS)
- Distributed real-time state of health-monitoring with command & control capability
- Comprehensive automated seismic event information
- Network size independent - Aspen scales with hardware
- Ring buffer size limited only by the maximum file size of OS
- Archives raw data and results
- Client/Server TCP/IP paradigm
- Supports all telemetry links with standard TCP/IP Level 4 protocol over multiple physical interfaces including standard duplex serial interfaces
- Unique online and off-line processing tools
- Offers Relational Database Management System (RDBMS) tools for rapid access to earthquake information
- Rich development toolkit
- Cloud computing and high-availability configuration
- Implemented by the largest seismic networks in the world today¹

1. USArray is one consisting of ~ 500 stations.

 **SPECIFICATIONS**



Aspen Data Center

The Aspen Data Center is the platform where the most critical processes run under the supervision of the Antelope system software. Its high-availability computing infrastructure consists of servers, storage, clients, and network components scaled to meet your monitoring objectives.

The Aspen Server collects all incoming data streams from the remote sites or other tied-in monitoring systems, processes data, archives raw data and results, generates automated notifications including earthquake early warnings, and forwards data streams to other networked data centers.

The Aspen Data Center provides full functionality for seismic network and array operations. This includes real-time data acquisition to a non-volatile disk ring-buffer, interactive control-&-command of field equipment, system state of health monitoring, and real-time automated data processing (detection, picking, seismic event association, seismic event location, archiving). It also provides interactive and batch processing, information system functions, automated distribution of raw data and processed results, and a powerful development toolkit for extending and customizing the system.

An Aspen Data Center can be implemented in the cloud. Such installations take advantage of the flexibility and elasticity of the computing resources with minimum capital investment.