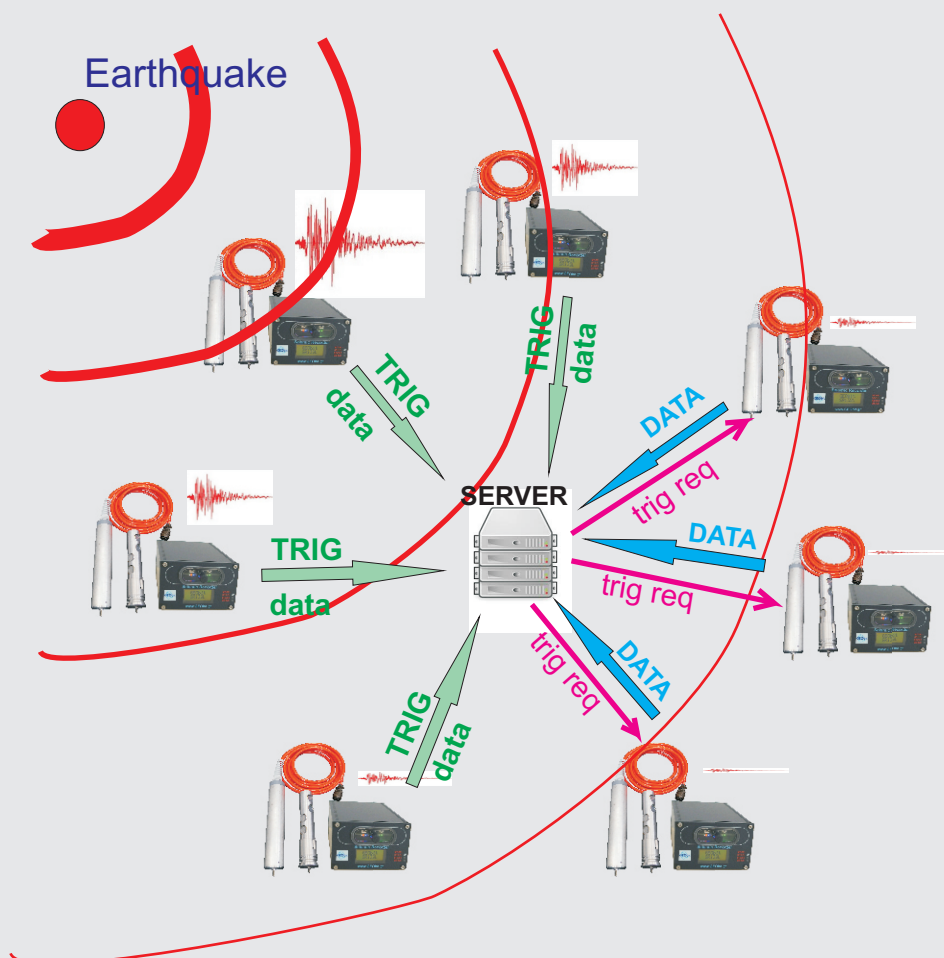




GEOsmart: Smart Seismic Networks Implementation

GEObit introduces a smart seismic network implementation using the SRi32S, SRi32SIX and GEOTiny instruments. The firmware of these devices provides advanced functionality and smart networking capabilities when combined with the Earthworm acquisition suite.

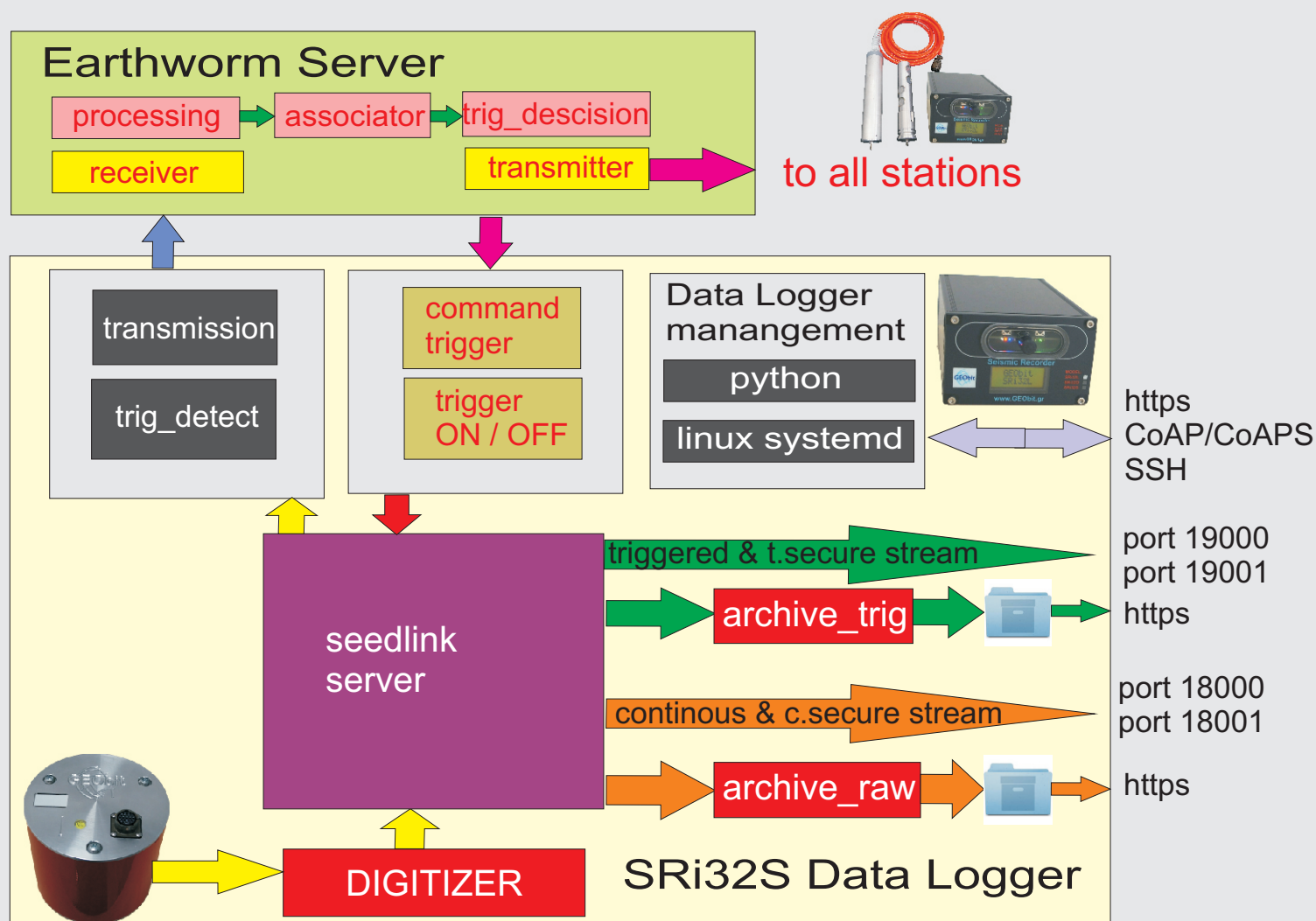
The technique is based on advanced triggering and decision algorithms, running at the machine and at server's side, respectively. The result is that the server may selectively receive parts of the seismic signal containing only triggered seismic events instead of the complete raw data stream - which is still available from a different TCP port.



Typical applications of this functionality can be:

- Dense seismic networks, where communication costs have to be minimized by transmitting only the useful parts of the seismic signal, thus providing communication costs reduction even up to 90%.
- Seismic networks with limited communication bandwidth, where only the triggered part has to be transmitted
- High data rate (500sps) acquisition links that would otherwise increase the transmission costs dramatically.

In other words, **the server decides!**





GEOsmart: Smart Seismic Networks Implementation

The instruments' software builds on top of widely used open source components around the Linux kernel with real-time extensions and the core Debian Linux distribution. It exploits an innovative integration of features based on GPL components from well-known seismic processing frameworks, with widely used de-facto standards for the data plane (i.e. seedlink) and IoT protocol extensions for the signaling plane (e.g. MQTT, CoAP). Based on these, the instrument implements smart functionality such as network controlled, event triggered data transmission, in parallel with edge archiving and, on demand, short-term historical data retrieval.



SRI32s Digitizer

Contents

- [System & Network](#)
- [Data Acquisition](#)
- [Credentials](#)
- [Stream Archive](#)
- [Trigger Archive](#)



SRI32s Digitizer

+ Seismometer

+ Digitizer & SeedLink Stream Server

START STOP Seedlink Server is running CLEAR BUFFER

Sampling Rate: 100 sps

Filter Response: LINEAR

Gain: 1

GPS cycle: 60 sec

Active Channels: 3

Network description: HP Geobit

Network ID: HP

Station Name: GBT2

Station description: Geobit SRI32

Channel Prefix: BH

Archive: ☒

Archive Keep: 10 days

SUBMIT READ

+ Triggered SeedLink Chain

+ Trigger Detection



SRI32s Digitizer

+ Seismometer

+ Digitizer & SeedLink Stream Server

+ Triggered SeedLink Chain

START STOP Seedlink Chain is running CLEAR BUFFER

Pre Trigger: 1 min

Post Trigger: 1 min

Local Trigger: ☐

Subscribe Network Trigger: ☒

Trigger Server: 62.38.92.194

Archive: ☒

Archive Keep: 5 days

SUBMIT REFRESH

+ Trigger Detection

START STOP Trigger Detection is running

LTA Time: 8 sec

STA Time: 3 sec

Decimation Factor: 1

Ratio: 1

Quiet: 1

Trigger History: 5

Time Tolerance: 2 sec

Publish Network Trigger: ☒

Trigger Server: 62.38.92.194

SUBMIT REFRESH