

ArcLink and its applications

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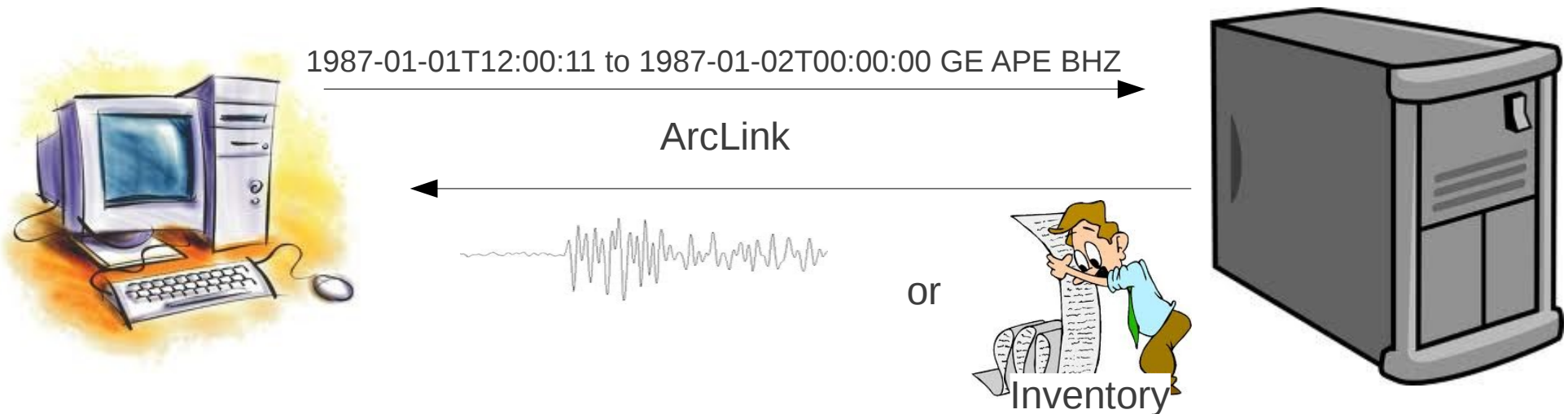
22nd September 2011

Topics

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 - ArcLink Proxy (Andres Heinloo)

ArcLink

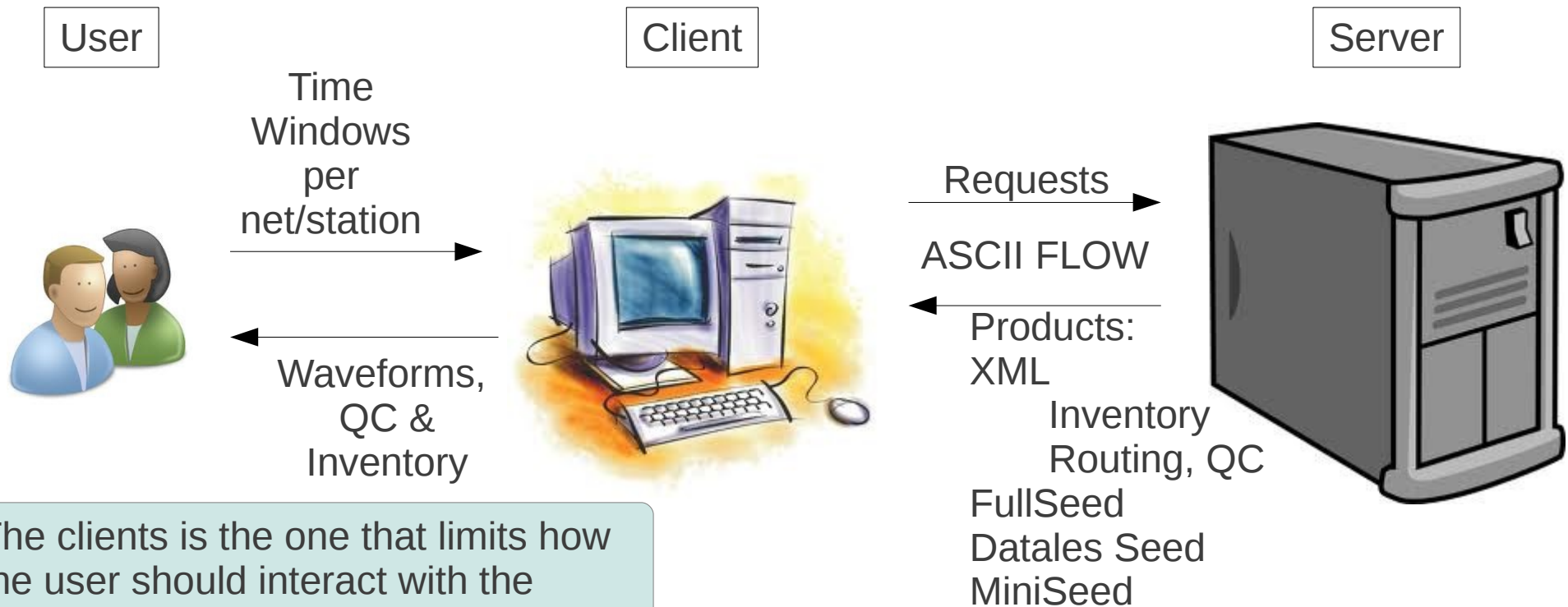
- Is a technology that is used to query a server for seismological data in a certain time window.
- The ArcLink can refer to the protocol, or just to the server (computer program) that is included in SeisComp3 that implements the protocol.



History

- It was developed at GFZ inside the GEOFON group.
- Initially to join the access to seismological data at GFZ and BGR in Germany in the GIDA (German Integrated Data Archive) and Europe (NERIES/EIDA) projects.
- It was the counter part of SeedLink (real-time data provider)
- Many tools, like WebDC, Breqfast, arclink_fetch and others are just clients to the ArcLink server. Also, other centers have implemented webservices that relying on ArcLink.

How it works

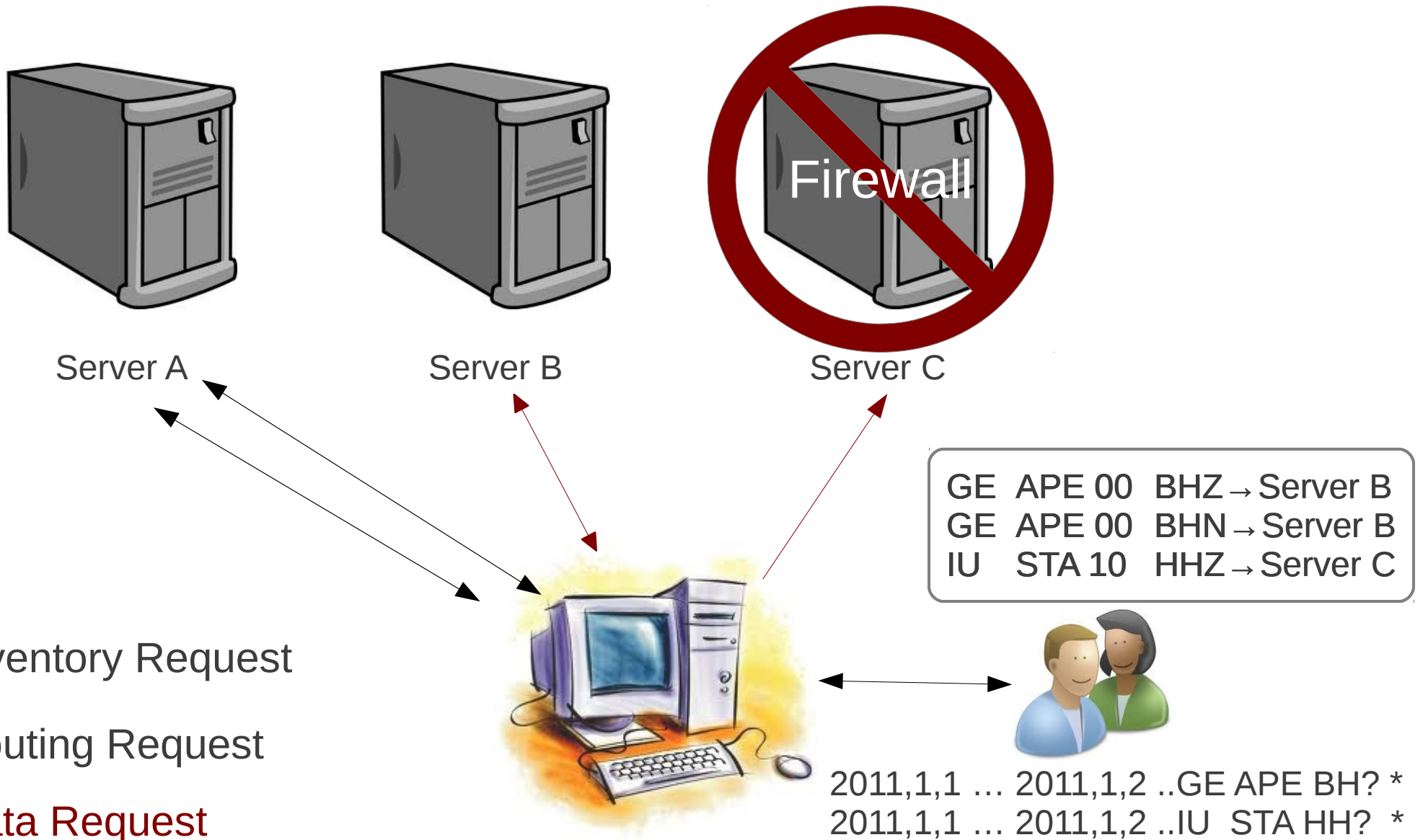


The client is the one that limits how the user should interact with the ArcLink server, some client examples are:

arclinktool, arclink_fetch, webDC.eu portal, Breqfast (in seiscomp3), ObsPy, scolv (picker) and so on ...

ArcLink uses a tracking Id (Similar to DHL, Fedex) for each request, allowing the client to break the connection between the request submission and the products retrieval.

Wildcards & Routing



ArcLink Protocol

hello

ArcLink v1.2 (2011.062)

Bianchi

request waveform

ERROR

showerr

authentication required

user mbianchi@gfz-potsdam.de

OK

request routing

OK

2011,1,1,00,00,00 2011,1,2,00,00,00 GE APE BH? *

END

1597

status 1597

<?xml version="1.0"?>

<arclink>

<request id="1597" type="ROUTING" label="" args="" encrypted="false" size="545" ...

<volume id="routing" dcid="BIA" status="OK" size="545" encrypted="false" message="">

<line content="2011,1,1,00,00,00 2011,1,2,00,00,00 GE APE BH? *" status="OK" ...

</volume>

</request>

</arclink>

END

purge 1597

OK

bye

The communication with the ArcLink server can be tested using telnet and the set of commands specified on the protocol.

hello

user

request

status

institution

label

showerr

purge

download

bdownload

end

bye

Command Set

Demo Protocol

Request Demo

Status and Purge Demo

SeisComP3 implementation of ArcLink

SeisComp3 ArcLink

- ArcLink is a package inside the SeisComp3 distribution.
- We supply:
 - The ArcLink server.
 - The ArcLink request handler.
 - Some programatic modules in python to access the ArcLink server (manager.py & client.py).
 - Clients:
 - all trunk modules
 - arclinktool
 - arclink_fetch
 - breqfast.py

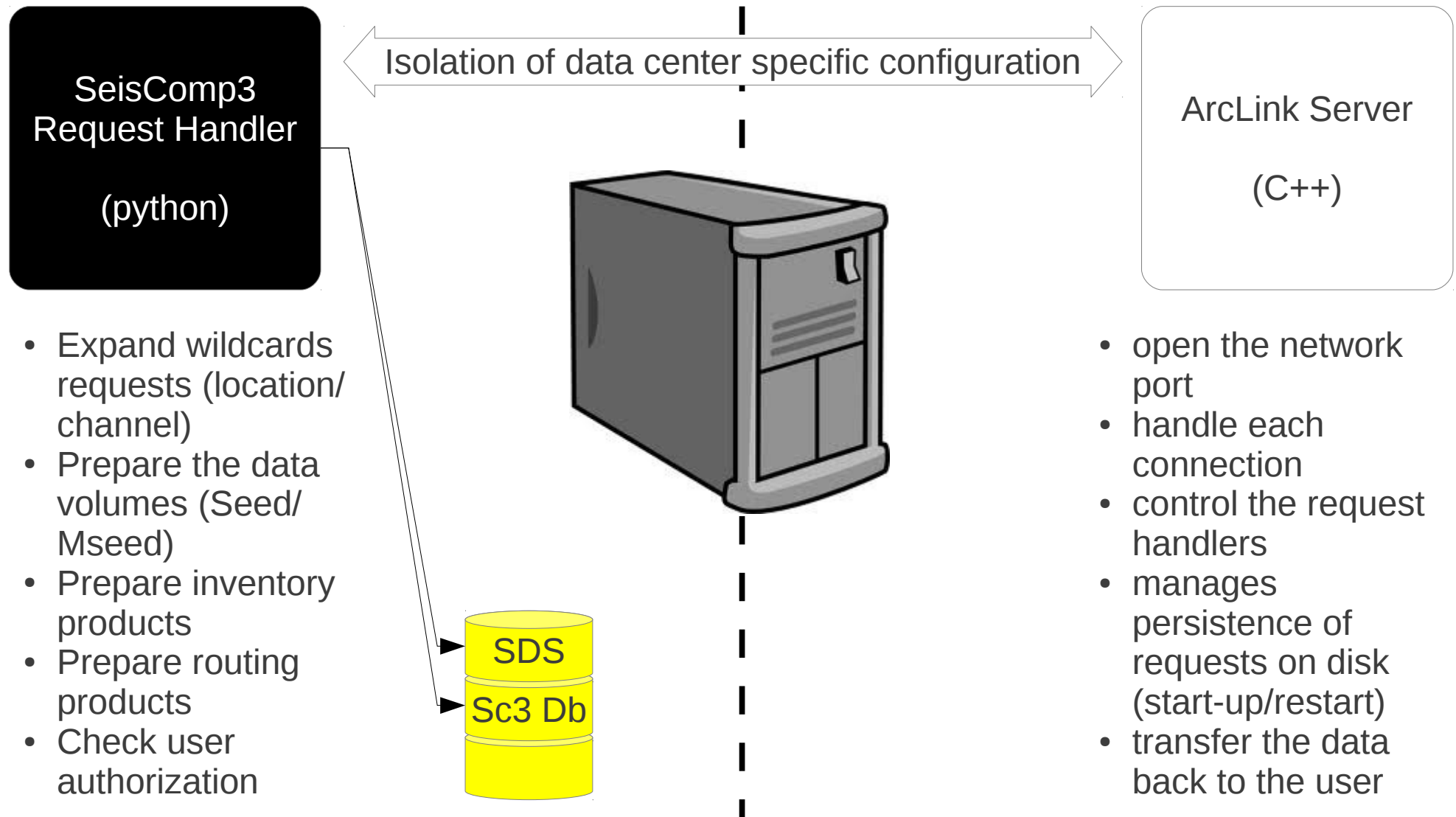
It can be configured using the current “seiscomp” script.

The handler talks to SeisComp3 Db – it is derived from the application class.

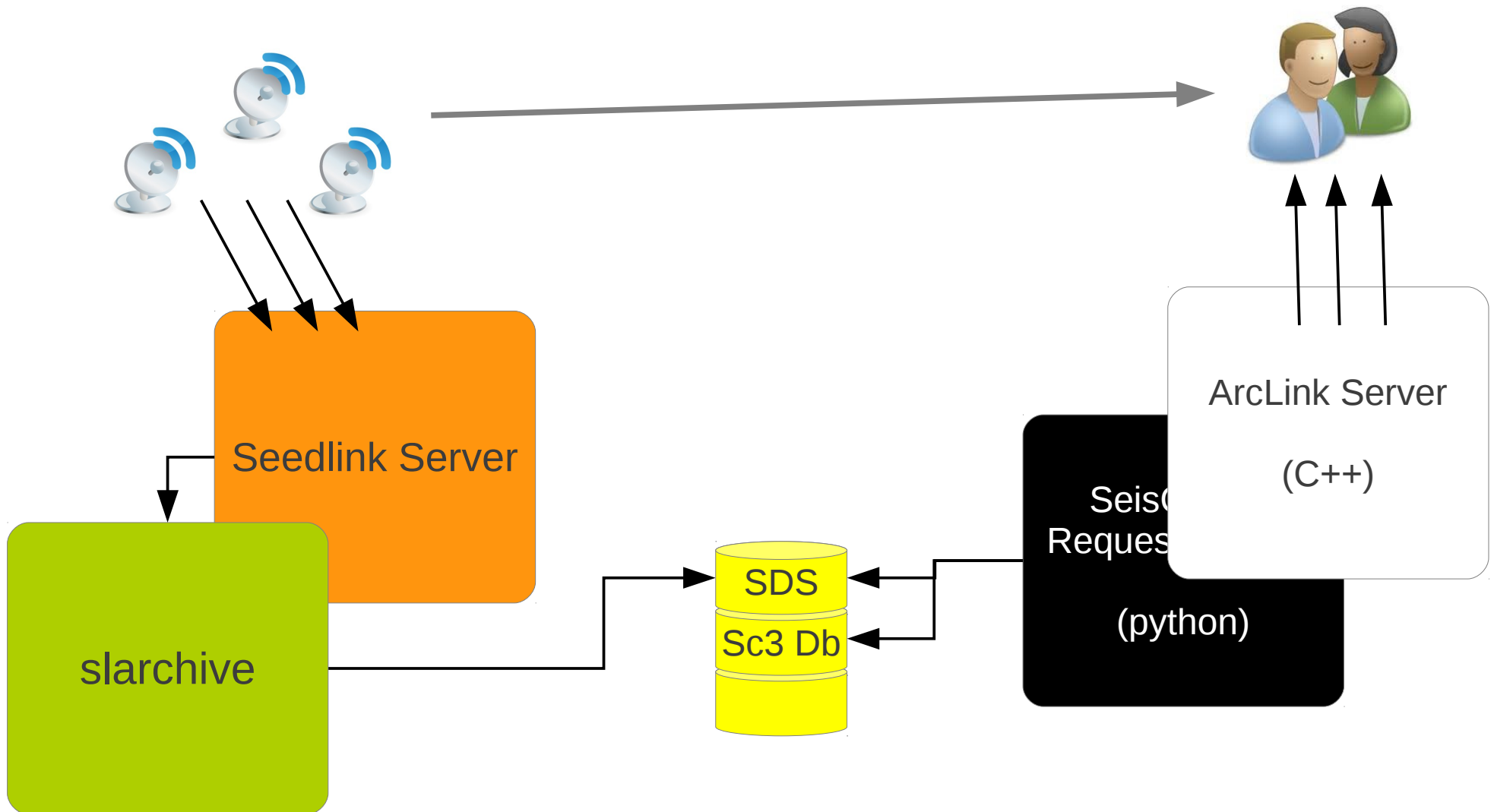
It is used by the graphical GUI to request archive data (data that SeedLink doesn't have anymore on buffer).

It can be used to share data from your archive, that “slarchive” stores.

Implementation



“Out of the box” setup



Configuring your ArcLink server

Configuring ArcLink

SeisComP version 3.0 (2010.256)

G) Edit global parameters
A) Add/Edit network
R) Remove network
P) Add/Edit configuration profile
W) Write configuration and quit
Q) Quit without writing configuration
Command? [A]: **G**

0) Simple acquisition system
1) Advanced acquisition and processing system
2) ArcLink system
Configuration style [1]: **2 (or 1 also !)**
Name of Data Center [Test]:
Email of the responsible of the datacenter []: **mbianchi@gfz-potsdam.de**
Path to waveform archive [/data/home/mbianchi/seiscomp3/acquisition/archive]:
Use syslog when supported [yes]:

Following packages are selectable: trunk acquisition arclink diskmon

Select package: **arclink**
Enable local ArcLink [yes]: **yes**
Master ArcLink node for DB synchronization: **—**
Time of DB synchronization:
Maximum size of data product (MB) [500]:
ArcLink admin password [test123]: **mypass**
Enable arclink encryption (true/false) [false]: **true**

Key files overview

`${SEISCOMP_ROOT}/key/global`

ARCLINK_PORT	=	18001	Default port used by arclink (not asked)
SDS_PATH	=	<code>\${SEISCOMP_ROOT}/acquisition/archive</code>	SDS path
CONTACT_EMAIL	=		Email of the seiscomp installation responsible

`${SEISCOMP_ROOT}/arclink/key/global`

ARCLINK	=	'yes'	Enable arclink?
MASTER_NODE	=	"	Master node for synchronize, (empty)
SYNC_TIME	=	'07:10'	Time of synchronization
MAX_DATA_SIZE	=	'500'	Max datasize generated by ArcLink
ADMINPASS	=	'<password>'	ArcLink admin pass, (password encryption also)
ENCRYPTION	=	'true'	Enable encryption?

`${SEISCOMP_ROOT}/arclink/key/station_??_????`

KEY_VERSION	=	'2.5'	
ROUTE_ARCLINK	=	'<server name:port>'	ArcLink Routes for the station/network
ACCESS	=	'<Email separated by spaces>'	Restrictions of access

Routing Configuration

- Today, the routes are created for every N-S-L-C (Network, station, location, channel). They are defined on station key files from the ArcLink folder.
- Examples:

station_GE_APE

```
KEY_VERSION='2.5'  
ROUTE_SEEDLINK=''  
ROUTE_ARCLINK='webdc.eu:18001'  
ACCESS=''
```

station_GE_APE

```
KEY_VERSION='2.5'  
ROUTE_SEEDLINK=''  
ROUTE_ARCLINK='webdc.eu:18001, knmi.nl:18001(*,*,HH*,)'  
ACCESS=''
```


Don't forget

- The ArcLink is using a configuration parameters from trunk, the **datacenter ID** !
- This key should be configured on the trunk package. And consequently goes to the trunk global key file.

Key name: **dcid**

File: **`${SEISCOMP_ROOT}/trunk/key/global`**

Clients

Using it with trunk modules

- For using ArcLink as a source inside your SeisComP3 trunk modules one should use:

```
recordstream.service = arclink  
recordstream.source = localhost:18001[?user=<Email>]
```

```
recordstream.service = combined  
recordstream.source = localhost:18000;localhost:18001
```

└──────────────────┬──────────────────┘
SeedLink ArcLink

Where do I set this?

```
${SEISCOMP_ROOT}/trunk/key/global.cfg
```

Stand-Alone client (arclink_fetch)

Downloader - SeisComp 3

www.seiscomp3.org/downloader/download/category/9

Downloader

[show all downloads](#)

Category	Release	Filename	Size (kB)	Architecture
Arclink Fetch				
	2011.136 (08/04/11 09:24:55)			
		arclink_fetch.2011.136.tar.gz	54.31	Any
	2011.235 (08/23/11 13:26:18)			
		arclinkfetch-2011.235-0.Fedora.noarch.rpm	63.67	Fedora, CentOS (32, 64 bits)
		arclinkfetch-2011.235-0.Suse.noarch.rpm	63.67	OpenSuse, Mandriva (32 & 64 bits)
		arclinkfetch-2011.235.tar.gz	59.66	Any
		arclinkfetch_2011.235_all.deb	60.11	Debian and Ubuntu (32, 64 bits)

 **trac** POWERED

Powered by Trac 0.11.7
By Edgewall Software.

Visit the Trac open source project at
<http://trac.edgewall.org/>

Demo Arclink Fetch

arclink_fetch capabilities

- Automatic Inventory expansion
- Automatic routing
- Automatic decompression
- Automatic decryption
- Two different file request formats
 - Breqfast
 - Normal format

Keep in mind

- Arclink is a protocol to exchange archive data
- Arclink is also the server name implemented in seiscomp
- Arclink can get inventory
- Arclink can get miniseed and fullseed data
- Arclink has routing as integrated
- Arclink can have problems with firewalls
- Arclink can help you to share your data

Thank you !

Final running folder structure

