GENI Instrument and Measurement System (GIMS)
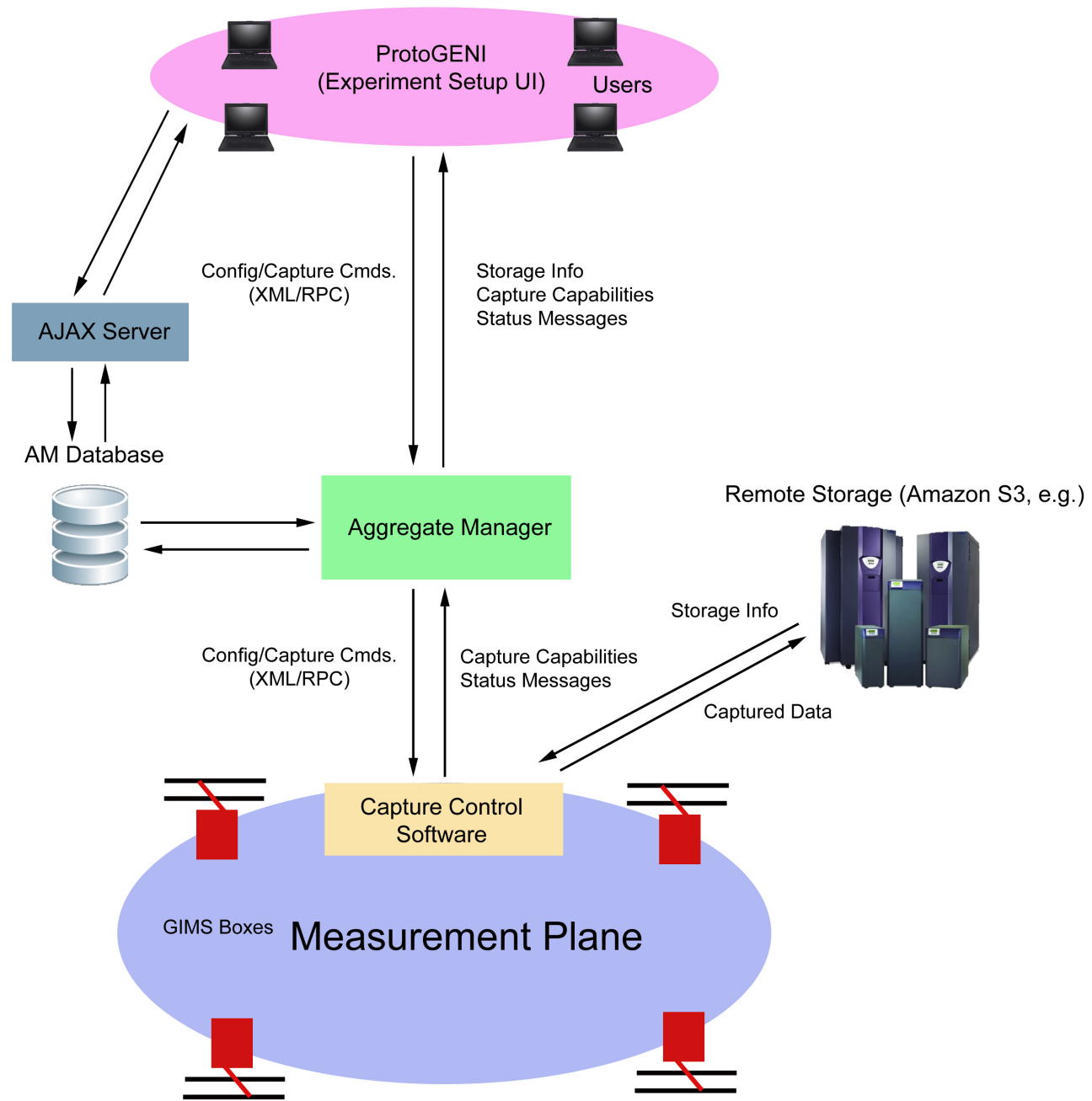
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GIMS
High Speed Packet Capture

- AJAX-enabled GUI for control.
- Traffic capture hardware/software (PC with DAG card).
- MySQL Database.
- Aggregate Manager to coordinate.
- Data storage (local and third-party vendors).
- XML/RPC used for control commands.

ProtoGENI
(Experiment Setup UI)   Users

AJAX Server

Config/Capture Cmds.
(XML/RPC)

Storage Info
Capture Capabilities
Status Messages

AM Database

Aggregate Manager

Remote Storage (Amazon S3, e.g.)

Config/Capture Cmds.
(XML/RPC)

Capture Capabilities
Status Messages

Storage Info

Captured Data

Capture Control
Software

GIMS Boxes   Measurement Plane

Functionality:

- Create new experiment.
- Configure capture device (for a given experiment).
- Start/Stop capture.
- Get experiment settings.
- Monitor experiment status or get experiment results.

GIMS - GENI Instrument and Measurement Systems

User authentication not obtained.

Welcome to GIMS!

Action to perform: Create New Experiment

Capture Device Name: msn:pc-i5-46-v

Experiment ID: EXP_C035608D

Submit

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Setup GIMS Capture Parameters

Received data from GIMS Aggregate Manager:

Aggregate manager received command GetDeviceCapabilities.

Result:

Received device capabilities: location='msn', device='pc-i5-46-v'

Site: msn
Device: pc-i5-46-v
Experiment ID: EXP_E691DFF7

Storage Type:
- ⦿ local
- ○ s3
- ○ ssh

Storage Options:
`/home/net/GIMS/cthomas`

Filtering:
- ☑ VLAN Num `121`
- ☑ Host Addr. `144.42.12.23`
- ☑ Dest Addr. `144.42.12.1`
- ☑ Host Port `80`
- ☑ Dest Port `80`
- ☑ Protocol `tcp ▼`

Sampling:
`none ▼` param: `0.5`

Aggregation:
`combine_pkt_flows ▼`

Anonymization:
`none ▼`

▶ **Add Libpcap String**

▶ **Add User Notes**

(Submit) (Reset)

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GIMS: Get Experiment Settings

Site: msn
Device: localhost
Experiment ID: EXP_700CA6DD

Received data from GIMS Aggregate Manager:

Aggregate manager received command GetExperimentSettings.

Received response from database:

```
<StorageSpec>
storagetype => local
<storageparams>
local_storage_dir => /home/net/foo
</storageparams>
</StorageSpec>
<CaptureSpec>
filterexpr => src host 144.42.12.23 and dst host 144.42.12.1 and src port 80
device => localhost
</CaptureSpec>
<MetaDataSpec>
UserText => These are some user notes.  Make note of them.
</MetaDataSpec>
MethodName => ConfigureExperiment
SiteLocation => msn
DeviceName => localhost
<AggregationSpec>
aggtype => none
</AggregationSpec>
VLAN => 123
<AnonSpec>
anontype => none
</AnonSpec>
ExperimentID => EXP_700CA6DD
```

Return to Start

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GIMS Control Panel

Site: msn

Site: msn
Device: localhost
Experiment ID: EXP_700CA6DD

Received data from GIMS Aggregate Manager:

`Aggregate manager received command StartExperiment.`

Received response from device:

`Starting capture!`

Select an Action:

Start Capture   Stop Capture

Return to Start

Current State of Project:

- Working to replace original capture control software with next generation software.

- Expansion of AJAX functionality to allow a smoother user experience.

- Moving toward integration of GENI authentication mechanisms.

- System benchmarking.

- Public availability.

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