

DDS

# Dynamic Deployment System

# Basic concepts

## DDS:

- implements a single-responsibility-principle command line tool-set and APIs,
- treats users' tasks as black boxes,
- doesn't depend on RMS (provides deployment via SSH, when no RMS is present),
- supports workers behind FireWalls,
- doesn't require pre-installation on WNs,
- deploys private facilities on demand with isolated sandboxes,
- provides a key-value properties propagation service for tasks,
- provides a rules based execution of tasks.

# The Contract

The system takes so called “topology file” (topo) as the input.

- Users describe desired tasks and their dependencies using topology files,
- users are provided with a WEB GUI to create topos. Can be created manually as well.

# status before TDR release

more details here: <https://github.com/FairRootGroup/DDS/blob/master/ReleaseNotes.md>

1. key-value propagation is supported,
2. DDS supports tasks requirements,
3. deploying FLP-EPN-like setups on the HLT cluster,
4. DDS tested and works at least 10K active agents (GSI's chronos),
5. multiple improvements of DDS's internal protocol, such as:
  - automatic message accumulation to improve transport of millions of small messages,
  - hand shaking,
  - it is now absolutely asynchronous and message-handler based.
6. users are able to restart topology (user tasks) without a restart of DDS.



# Current status, updates since last meeting

1. key-value: massive performance improvements (see next slide),
2. multiple protocol improvements,
3. clearly defined responsibilities of dds-topology and dds-submit,
4. new log levels. We use now abbreviations instead of numbers,
5. task indexes and collection indexes,
6. topology variables.

and many more other improvements and bug fixes.

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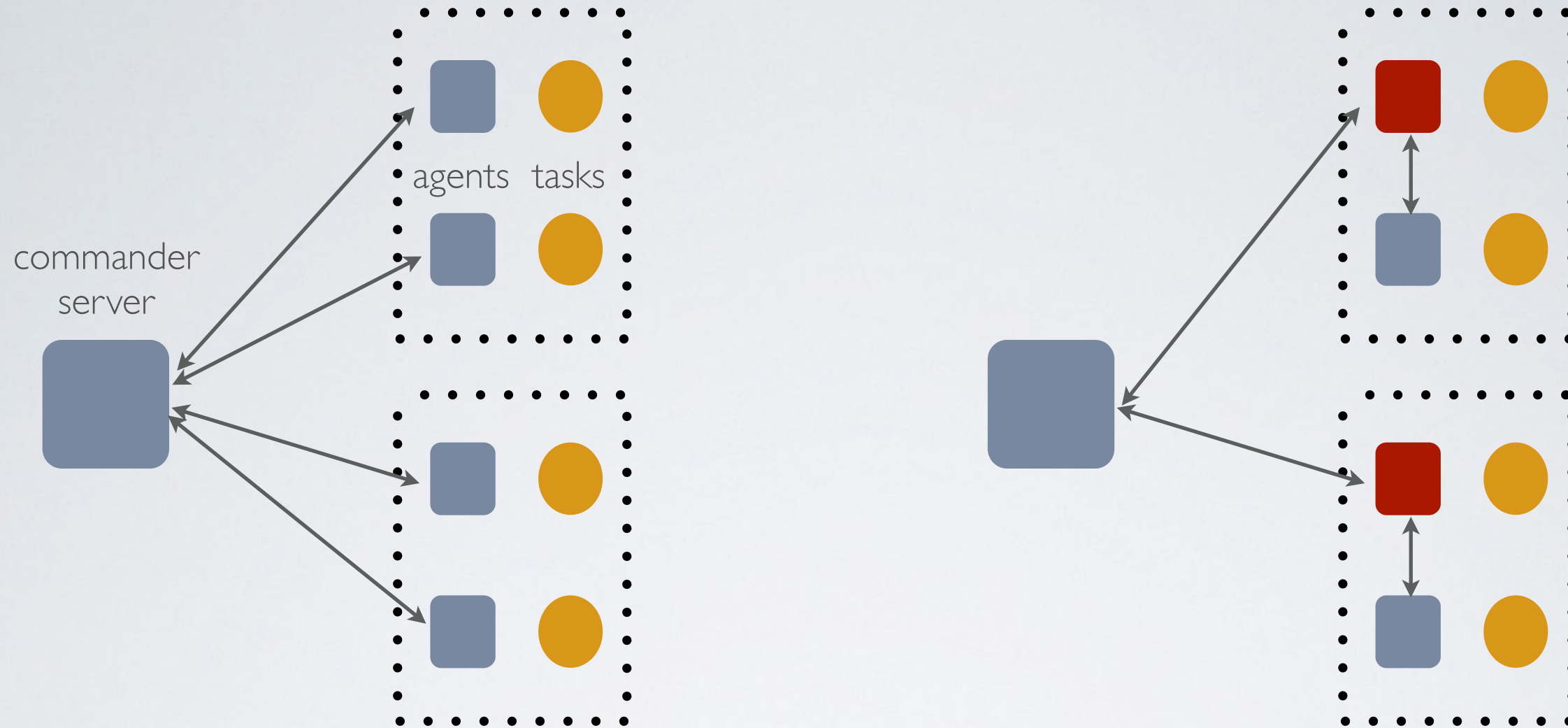
key-value stats  
(as of DDS v0.9, without master agents)

**10081 devices (5040 FLP + 5040 EPN + 1 Sampler);**

**Startup time 207 sec (3:27);**

**DDS propagated ~77 Millions key-value properties.**

# Master Agent feature



1. DDS Commander will have one connection per host,
2. master agents will act as dummy proxy services, no special logic will be put on them except key-value propagation inside collections,
3. key-value will be either global or local for a collection

# SQLite as internal storage

1. Using custom or DDS provided tools users will be able to query different kinds of information about the deployment. Improved user experience.
2. Speed up algorithms, which require inputs from different containers,
3. Serialisation of the deployment. Can help us to use multiple DDS commander servers.



- Releases - DDS v0.8, currently finishing up v0.10  
(<http://dds.gsi.de/download.html>),
- DDS Home site: <http://dds.gsi.de>
- User's Manual: <http://dds.gsi.de/documentation.html>
- Continues integration: <http://demac012.gsi.de:22001/waterfall>
- Source Code:  
<https://github.com/FairRootGroup/DDS>  
<https://github.com/FairRootGroup/DDS-user-manual>  
<https://github.com/FairRootGroup/DDS-web-site>  
<https://github.com/FairRootGroup/DDS-topology-editor>