Tuning Infrastructure for Server Virtualization Experiment Protocol

Erich Augusto C. Guedes
0. What do I do?

1. Performability Analysis through measurements
   - produce recommendations on how to use virtualized network services with high availability and performance similar (or little better) to native environments.
1. Problems

1. Software Hang
   - Phenomenon of unresponsiveness

Why Software Hangs and What Can Be Done With It

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<table>
<thead>
<tr>
<th>Reason</th>
<th>#Bugs</th>
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<tr>
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38.8%
1. Problems

2. Time between experiment iterations
   - > 30 minutes (high level of required tunings)

Possibility to tackle such problems:

- **Automation**: TISVEP - Tuning Infrastructure for Server Virtualization Experiment Protocol

To prevent software hangs
2. Automation Monitoring Insight

Toward an Architecture for Monitoring Private Clouds

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The monitoring system. Examples of this data are processor load and memory usage.

**Configuration Generator:** Retrieves information from the database, for example, to generate the necessary configuration files for visualization tools being used in the view layer.

**Monitoring Tool Server:** This module is responsible for receiving monitoring data from different resources (e.g., the VM Monitor). The current version it is not fully developed and some shortcuts were taken to pass some moni-

of plug-ins). In addition, Eucalyptus provides a simple Nagios script for basic monitoring of Eucalyptus components.
3. TISVEP

1. Main Objectives:
   ○ minimize software hang occurrences
     ■ Studied service:
       ● web cache server cluster
   ○ reduce configuration time intervals between experiment iterations
     ■ Without automation: **30-40 minutes**
     ■ *Experiments objectives*: provide data for *performability analysis* of studied service
3. TISVEP

2. Features
   ○ Lightweight
     ■ use Bash language and netpipes for network communication
   ○ Extensible:
     ■ ability to have introduce new functionalities
       ● quite common on conducted virtualized experiments
4. Testbed Infrastructure

Lab: C025

Container-based virtualization: OpenVZ
DAS - Directed-Attached Storage
6. Experiments

1/3 - OpenVZ network modes of operation

- 15 iterations: 3 per mode

![Diagram of OpenVZ network modes of operation]
6. Experiments

1/3 - OpenVZ network modes of operation

Scenario:
- 3CTs on 1 PM
- 2 GB per HD
A=100%

Supported by ggplot
6. Experiments

2/3 - 3 PMs (baseline) x 9CTs on 3 PMs
- Server consolidation
- 60 iterations of 30 minutes (A=100%)
6. Experiments
6. Experiments

3/3 - 900GB of cache: 3 PMs x 9CTs on 3 PMs
Conclusions

TISVEP: CCGrid 2015

Future Work: 150GB per HD
Tuning Infrastructure for Server Virtualization
Experiment Protocol
Ericho Augusto C. Guedes