Emulab Portal to PlanetLab

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PlanetLab Workshop, HPLabs
Emulab's Planetlab support is recovering from their transition to PlanetLab 2.0. Currently it's often working but is much slower than before. Please report problems.

Create a Slice on PlanetLab

<table>
<thead>
<tr>
<th>Number of nodes</th>
<th>10</th>
<th>All available nodes</th>
<th>One node at each site</th>
</tr>
</thead>
</table>

Create it  More options
Request all Available Nodes

Emulab's Planetlab support is recovering from their transition to PlanetLab 2.0. Currently it's often working but is much slower than before. Please report problems.

Create a Slice on PlanetLab

Number of nodes 222 or All available nodes or One node at each site

Create it  More options

[ Documentation : Search ] [ News ]
Emulab's Planetlab support is recovering from their transition to PlanetLab 2.0. Currently it's often working but is much slower than before. Please report problems.

Create a Slice on PlanetLab

Number of nodes [105] or [All available nodes] or [One node at each site]

Create it  More options
Emulab's Planetlab support is recovering from their transition to PlanetLab 2.0. Currently it's often working but is much slower than before. Please report problems.

## Basic Options

| Number of nodes          | 222 or All available nodes or One node at each site |

## Advanced Options

| Type of PlanetLab nodes: | Any PlanetLab node (222 available at 105 sites) |
| Estimated CPU and memory use: | Very Low |
| Retry until nodes with sufficient resources are available: |   |
| Proceed even if some nodes fail to set up: | ✓ |
| Auto-terminate slice after: | never Hours |

## Files to Install and Maintain

| Tarball(s) to install: |   |
| RPM(s) to install: |   |
| Command to run on startup: |   |

You can also take a look at the widearea node link metrics
Emulab's Planetlab support is recovering from their transition to PlanetLab 2.0. Currently it's often working but is much slower than before. Please report problems.

### Basic Options

| Number of nodes | 222 | All available nodes | One node at each site |

### Advanced Options

<table>
<thead>
<tr>
<th>Type of PlanetLab nodes:</th>
<th>Any PlanetLab node (222 available at 105 sites)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated CPU and memory use:</td>
<td>Any PlanetLab node (222 available at 105 sites) Nodes on DSL lines (0 available at 0 sites)</td>
</tr>
<tr>
<td>Retry until nodes with sufficient resources are available:</td>
<td>Commodity Internet, North America (31 available at 12 sites)</td>
</tr>
<tr>
<td>Proceed even if some nodes fail to set up:</td>
<td>Outside North America (48 available at 26 sites) Internet2 (143 available at 68 sites)</td>
</tr>
<tr>
<td>Auto-terminate slice after:</td>
<td>never Hours</td>
</tr>
</tbody>
</table>

### Files to Install and Maintain

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You can also take a look at the [widearea node link metrics](#)
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**Basic Options**

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<th>Value</th>
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<tbody>
<tr>
<td>Number of nodes</td>
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**Advanced Options**

<table>
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<th>Option</th>
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<td>Type of PlanetLab nodes</td>
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<td>Estimated CPU and memory use</td>
<td>Very Low</td>
</tr>
<tr>
<td>Retry until nodes with sufficient resources are available</td>
<td>No</td>
</tr>
<tr>
<td>Proceed even if some nodes fail to set up</td>
<td>Yes</td>
</tr>
<tr>
<td>Auto-terminate slice after</td>
<td>52 Weeks</td>
</tr>
</tbody>
</table>

**Files to Install and Maintain**

<table>
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<th>Option</th>
<th>Value</th>
</tr>
</thead>
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<tr>
<td>Tarball(s) to install</td>
<td>/tmp <a href="http://www.cs.utah.edu/~lepreau/fooby.tar.gz">http://www.cs.utah.edu/~lepreau/fooby.tar.gz</a></td>
</tr>
<tr>
<td>RPM(s) to install</td>
<td></td>
</tr>
<tr>
<td>Command to run on startup</td>
<td>/tmp/fooby/lisit</td>
</tr>
</tbody>
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You can also take a look at the [widearea node link metrics](#)
Emulab’s Planetlab Services

- Resource discovery
- Resource monitoring
  - Nodes, e2e health, pair-wise paths
- Resource allocation
  - Site, type, load, disk space
  - (Pair-wise path attributes)
  - Port space
Node/slice mgmt
(“environment service”)

Node Initialization
• Elab state, per-user state
• Startup command

• Maintenance and monitoring
  • State (programs, accounts, keys)
  • Slice/nodes

• Mechanisms:
  - Emulab central
  - Service slice (caching, bootstrapping, health)
More services

- Control service
  - Node, slice
  - Reboot, (Restart), update state, update accounts

- Naming service
  - Virtual (DNS) or physical

- Slice creation admission control and optional queuing

- XMLRPC interface
Future

- **Easy:**
  - Auto-grow slice to all (healthy) nodes
  - SFS
  - Finer-grain programmatic interface

- **Moderate**
  - Plab-prime in Elab (for testing)
  - Event system

- **Hard:**
  - Swap in/out slice
One Lesson and Issues

- Lesson: *only* end-to-end “test” assures node health
- Resource alloc algorithm biases towards distant sites (non-North America)- not representative for small slices?
- Oscillation of node availability
- Need better mechanisms from PlanetLab
  - Direct access to node mgr
  - Access to principal info
- Right services, right APIs for users?
- Cross-broker share/resource mgmt; federation?
- Revocation of shares
In Larry's Taxonomy...
Wireless upcoming...

- Wifi testbed at Rutgers WINlab Emulab
  - 625 node 2 meter array, 802.11[x]
- Wireless nodes at Utah
  - 2 today, 40 soon, ....
  - 802.11, software radio
- Motes and sensors
- Remotely controllable mobile nodes
  - Robots!