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Introduction

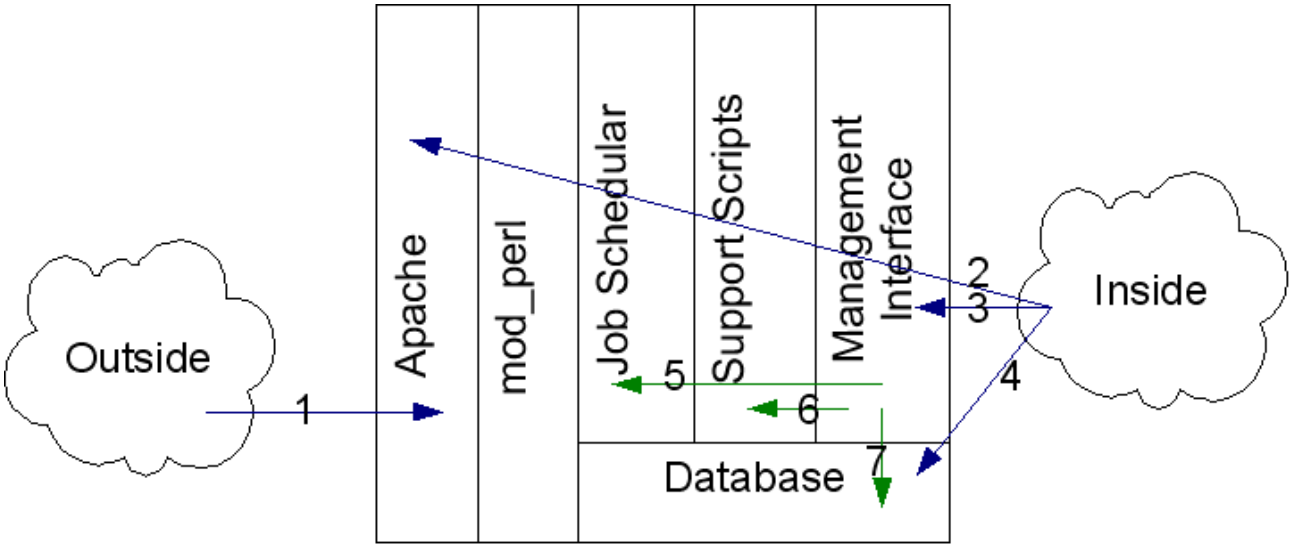
LAMPAS (Linux, Apache, MySQL and Perl Application Server) aims to be an application server framework to help in all aspects from configuration to source code version control to final deployment.

The technology is based on Apache 2 with mod_perl as the application server components and rely heavily on MySQL – not only as the DB backend, but also as the source code repository.

LAMPAS takes object re-use to the next level with it's unique module dependency definition engine. Since all pieces of code reside in the database, you define your application by linking the modules. The backend engine will calculate all other dependencies and deploy your final code complete. Version control is also taken to the next level, as you can run different versions of an application on the same system.

High Level Overview

In summary, we can describe the high level architecture as follows:



In the above diagram, “Outside” refers to any customer connectivity to the system (where a customer can be a person or application) and “Inside” refers to the developpers and administrators of the LAMPAS system.

The numbered arrow lines refer to the different connectivity components:

1. In all cases the “Outside” will enter the system via the Apache web server
2. People on the “Inside” will access the management interface via the Apache web server. All management is web based.
3. The Management Node (in a cluster configuration) connects to other nodes via a Management Interface, which is a stand alone server component.
4. The Management Node or DBA(s) may also access the Database(s) directly
5. The Management Interface can update the crontab files
6. The Management Interface can update the local support scripts
7. The Management Interface can do database maintenance

Clusters

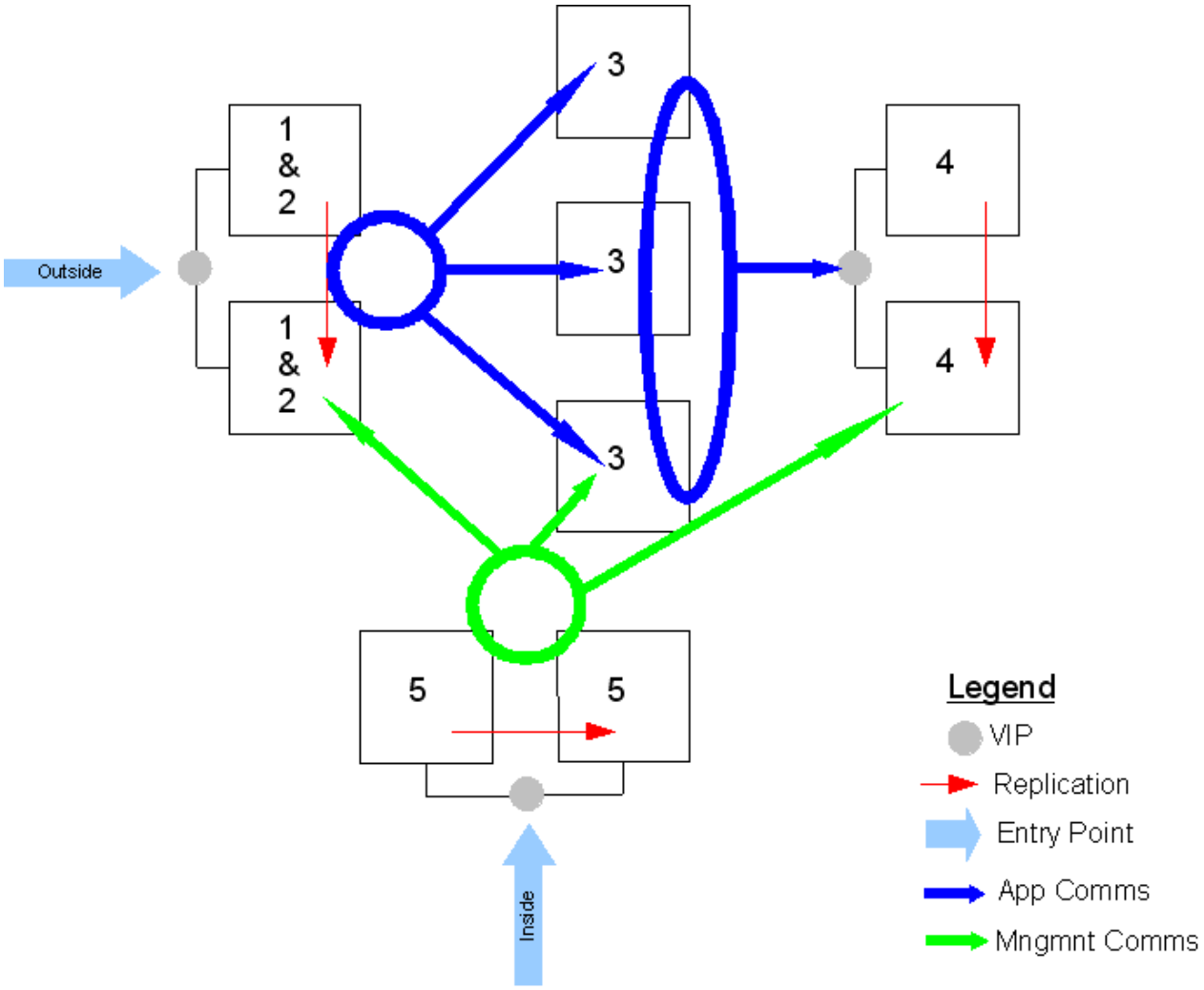
In a cluster configuration, each LAMPAS node can fulfill one of 5 roles:

1. Proxy Role
2. TCP Load Balancer Role
3. Application Server Role
4. Database Server Role
5. Management Console Role

By default LAMPAS is installed as a stand alone node, and as such roles 3, 4 and 5 are enabled. In a single server configuration roles 1 and 2 are not required.

The concepts of roles was introduced as part of the cluster management thinking. The proxy configuration (or node) is based on mod_proxy and TCP load balancing is based on PEN.

Here is a sample cluster configuration:



The Management Console

The role of the management console is:

- Ensure changes to a node is replicated to other nodes of the same role.
- System monitoring and alerting (including configuration)
- User Management (for the “Inside” users)
- Job schedular configuration and deployment (also based on roles)
- Support scripts development and deployment (also based on roles)

In a nutshell, the Management Console ensures consistency between nodes of the same role and handles all configuration and deployment tasks.

The Database Role

The primary databases holds info regarding:

- Source code with version control
- Logging data
- Application specific databases

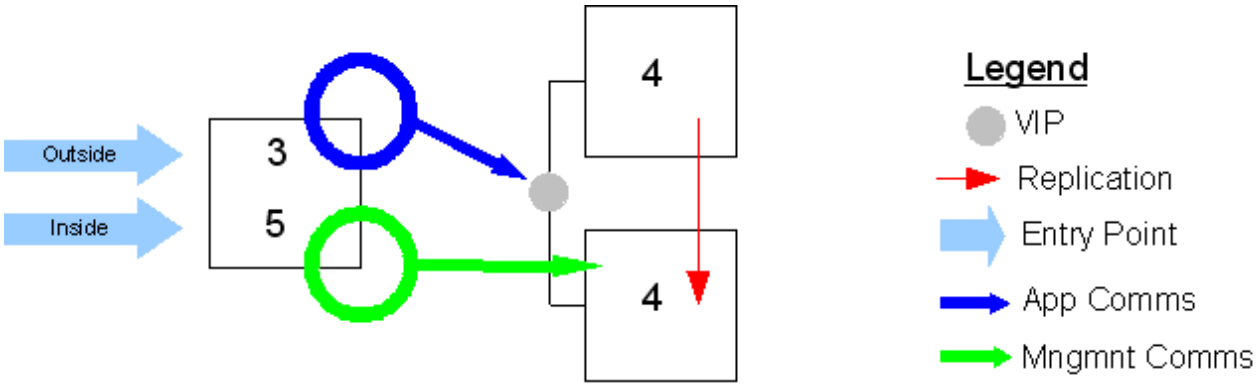
By default each database server has binary logging enabled.

The schedular tasks on the database node will typically perform the following tasks:

- Replication health monitoring and alerting
- Binary log monitoring and automated backup and purging
- Database backups (from the slave nodes)

Note : The whole LAMPAS concept is database driven and therefore great emphasis is placed on database maintenance and high availability.

The minimum recommended configuration suggested looks like this:



Other Package Dependencies

Apart from the LAMP components, LAMPAS also depends on the following packages:

- sudo – Used to deploy files as 'root' (/etc/hosts etc.)
- cron – used as the primary schedular
- mod_perl – The LAMPAS system is based on mod_perl
- Linux HA – a.k.a. 'heartbeat' is used in high availability clusters (Optional)
- PEN – A TCP load balancer (Optional)
- mod_proxy – For the Proxy role (Optional)

There are also a lot of Perl dependencies, including:

- The complete Perl Documentation Package (perl-doc on Debian)
- { to do }