

## D2.1 – Distributing Scratchpad servers

### Description of work

This document represents the work carried out in meeting this deliverable. The work was carried out by both the BGBM<sup>1</sup> and NHM<sup>2</sup>. This deliverable will help ensure the reliability of the Scratchpads as a whole, and attempts to make them more sustainable for the future. Before this deliverable was met, the only multiple site Scratchpad installation was the one hosted at the NHM. The work carried out to meet this deliverable, will also play a key role in creating a Scratchpad distribution that other users/institutions can download and install on their own servers.

### Creation of second server

As outlined in M2.10, we have used the Aegir hosting system<sup>3</sup> to make the process of copying sites from one server to another much easier. We have diverged a little from our original plan, deciding to use only Aegir for keeping a site mirror up-to-date with its origin site. This decision was made in-order to keep things as simple as possible, and also because it was felt that a system using MySQL replication was not necessary and could cause undue strain on the primary server. The system we have created is capable of updating a site mirror at regular intervals. We have currently chosen a time period of one week to update a site mirror, although this could be reduced or increased depending on site activity. Constraints in the DNS system mean that we are currently only able to create accessible site mirrors with domain names that we control. This means that, a site such as [www.cicadina.eu](http://www.cicadina.eu) can not have a mirror created using a domain name like [mirror.cicadina.eu](http://mirror.cicadina.eu). It is our intention to start hosting the DNS records for all of the Scratchpad domains, including those purchased specifically for a Scratchpad. This change to the way we are handling DNS records, will enable us to host a Scratchpad on any Scratchpad server without the user being aware of the difference, and also allow us to create a mirror with a domain name like [mirror.cicadina.eu](http://mirror.cicadina.eu).

The server at the BGBM<sup>4</sup> has been configured with almost exactly the same resources as the primary server at the NHM. It has four CPU cores available to it, and 16GB of RAM. This means that it should be more than capable of handling exactly the same quantity of traffic as the primary server. In the event of a catastrophic event at the NHM, we would be able to set the BGBM server to be the primary Scratchpad server.

### Primary/Mirror Interaction

The primary Scratchpad server talks to the Scratchpad mirror using the SSH protocol. The Aegir instance, hosted on the NHM machine, logs into the BGBM mirror, and issues commands. The commands carried out depend on the operation being performed. For example, to create a mirror of an NHM hosted Scratchpad on the BGBM server, the following operations are carried out:

- The site folder on the NHM machine is compressed and added to a tar file.
- The tar file is copied to the BGBM machine, and extracted in the same location as on the NHM machine.
- Settings files are created for the new site.
- The site database is copied from the NHM machine to the BGBM machine.

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1 <http://www.bgbm.org/>

2 <http://www.nhm.ac.uk/>

3 <http://www.aegirproject.org/>

4 <http://e090.bgbm.fu-berlin.de/>

- The server is restarted, making the new site visible.
- The process is verified, with it rolling back to a clean state if the process of creating the mirror failed.

This process can be automated so that any new sites created on the primary NHM server are automatically mirrored to the BGBM mirror, and also to ensure that the site mirrors are kept up-to-date.

## **Code updates**

Currently the code on all the servers are kept in synchronisation with a simple bash script. The script is executed by the lead Scratchpad developer when a new code release has been produced. The script logs into each Scratchpad server in turn, and updates the code using standard Git<sup>5</sup> commands. At the moment, this more than satisfies our requirements, however, in the future this may be changed to better integrate with the Aegir installation, and also with the output of the proposed deliverable D2.4.

## **Further work**

It is our intention to start creating Scratchpads whose primary server is the BGBM server. These Scratchpads would then be mirrored on the NHM machine. This process can not be started however, until we have made significant changes to the way we currently handle our DNS. Once the DNS changes have been made, there will be no restriction to the number of Scratchpad nodes we can have running across the ViBRANT partners, and therefore no limit to the number of Scratchpad users and usage.

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5 <http://git-scm.com/>