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INTRODUCTION TO XSQUARE

The goal of the Xsquare solution is to act as an orchestrator which receives job requests and dispatches them to the appropriate engine (for load balancing, JOB API, etc). This allows choosing the most suitable engine available on the network to manage the desired job (transcoding, rewrapping, etc).

The engines managed by Xsquare will first be limited to XTAccess. All XTAccess tasks will run through Xsquare which will be the central point controlling XTAccess. As an initial effect, XTAccess will not be directly visible anymore to users.

MAIN ADVANTAGES

> One orchestrator for all jobs ⇒ improvement of load balancing jobs, dispatching & management
> One configuration tool ⇒ simplifying engine configuration as well as target configuration
> One monitoring tool ⇒ simplifying the monitoring of all jobs
> Additional modules (Scan Folder, Scan XML v1) can be added to Xsquare ⇒ modularity

The clients (IPD, third-party, Xedio, etc) who want to create a job (transfer of media from A to B) will have only one single interface (GUI, API, configuration): Xsquare.
XSQUARE AT OG 2012
SOME NUMBERS

During the OG 2012 in London: Xsquare managed more than 71 XTAccess servers. These 71 XTAccess servers were considered as engines able to transcode, rewrap, render EDL, export EDL, send to Avid, etc.

Xsquare was able to process 10 jobs per second. During the OG 2012, it was possible to process up to 150 jobs with high or low destinations simultaneously. Throughout the entire event: Xsquare managed more than 60,000 jobs.
HOW TO CONFIGURE AND USE XSQUARE

The main points required throughout the OG using Xsquared:

> Define clusters and configure all XTAccess servers (see “XTAccess/Cluster Configuration” chapter below).
> Create targets in Xsquared for IPDirector (see “Target Configuration” chapter below).
> Monitor and manage all jobs sent via IPDirector (see “Monitoring and Queuing Management” chapter below).
> Since Xsquared is a web interface, it was possible to execute everything from all local network computers. Although, the Xsquared’s interface was protected by a login/password.
XTACCESS/CLUSTER CONFIGURATION

As a benefit from the installation of Xsquare, it was possible to configure all XTAccess servers from one single interface.

We were able to configure the maximum number of destinations with and without transcoding that allowed XTAccess to execute.

EXAMPLE
If the XTAccess were installed on XFile hardware less powerful than XTAccess HP: we would have defined a lower amount of "maximum number of destinations".
We also created clusters (groups of XTAccess servers) to dedicate specific jobs to specific XTAccess servers.

Main clusters created during the OG:

> **Avid Cluster**: For all jobs send to Avid. Since only certain XTAccess servers had the Avid ISIS connection manager and were able to write on the Avid ISIS system, we had to associate all these XTAccess servers in one cluster which sent all jobs “to Avid”.

> **Ingest Cluster**: For all train backups. We wanted to protect the train backup on specific XTAccess servers and remain certain that these XTAccess servers would only perform train backup and would always be ready to record XT feeds 7 days a week 24 hours a day.

> **Archive Cluster**: For all archive jobs on XFile hard drive. The goal was to archive certain clips on the XFile drive without perturbing other jobs and XTAccess.

> **“Send to Broadcaster” Cluster**: We had 12 XTAccess servers dedicated for transfer jobs between the central server and broadcasters.

Due to Xsquare, it was possible to modify the number of XTAccess servers in each cluster during lives.

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**EXAMPLE**

During the night, certain XTAccess servers were switched from the “Send to Broadcaster” cluster to the “Archive” cluster for more bandwidth for archive transfers.
TARGET CONFIGURATION (MULTI DESTINATION)

After the configuration of all XTAccess servers, we were able to configure multi destination targets. While Xsquare was used with IPDirector throughout the OG, we were still required to use the XML unit. Instead of creating an XML Unit on each XTAccess server, we created all XML units in one Xsquare interface.

**EXAMPLE**

We had one XML unit defined in Xsquare which created a job with three destinations (one high destination to the EVS XStore SAN, one low destination to the EVS XStore SAN, one high destination to one Avid ISIS).

There were only three parameters to define:

1. `\172.1.210\xml_units\XT01` : the path was sent via IPD to the XML job file.

2. Ingest via Web services 1: the Xsquare template (similar to a profile job) which defined the 3 destinations that needed to be created.

3. Paths for 3 destinations.

Jobs created by this Xsquare XML unit were then sent to other available XTAccess servers, depending on clusters.
MONITORING AND QUEUING MANAGEMENT

The Media Manager was able to run all monitoring jobs inside the Xsquare server.

It was possible to apply filters in the GUI to retrieve a specific job. If required, the Media Manager was then able to retry or cancel one or several selected jobs.

EXAMPLE
The media manager wanted to retry all jobs with a source path which was started initiated with \XFMedia that failed after a defined date and time.
One another thing that the Media Manager was able to do is to change the queuing order of the scheduled jobs.

The Media Manager was also able to change the queuing order of scheduled jobs.

**EXAMPLE**

If a user requests 100 simultaneous transfers on one XTAccess cluster which can only do 20 simultaneous transfers, there will be 80 jobs scheduled in Xsquare. If there is one very important task within these 80 scheduled jobs, the user can request the media manager to move the task in question to the top the list.

The monitoring also displayed the number of destinations than one cluster was able to execute.

**EXAMPLE**

The cluster here has only one associated XTAccess (Available Job Proc. 1/1). It can manage 1 destination without transcoding (destination 0/1) and 1 destination with transcoding (transcoding 0/1) while it is doing nothing.
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