VALE new jersey

Virtual Academic Library Environment

www.valenj.org

TO: VALID-OLS Steering Committee - VOSC

FROM: VALID-OLS Implementation Task Force – VOIT

RE: Charge #2 VALID-OLS Server Specifications

DATE: March 23, 2012

A year has passed since VOIT delivered a server specification recommendation (March 10, 2011) to VOSC, and much has changed. Primary assumptions that formed the context of last year's recommendation were that the system would be one of purchased or leased hardware, based locally, and that it would, from the outset, be scaled and specified with the goal of running a shared, consortial ILS for the initial Alpha and Beta implementers, and expandable to meet the needs of additional institutions as they decide to join the program. We based our cost estimates on the types of servers being used in similar environments in other statewide consortiums and arrived at a figure of $320,000.

Since then, we have sought and obtained the advice of Tibor Purger, Director of Integrated Information Systems at Rutgers University and David Hoover, Systems Programmer at Rutgers University. Tibor counseled us towards a Linux-based server architecture that would dramatically lower costs and create a server programming environment that would be easier to staff. Dave provided ample practical advice in many areas. Coupled with Dave's experience working with VALE since its beginning, VOIT has taken his suggestions to heart.

VOIT's work over the past year has centered largely on the selection of a discovery layer (DL) to be the user interface for the future VALID-OLS. VOIT has conducted tests using development servers at TCNJ and Drew University. Continually, the discussion of a next-phase server that would allow continued development and initial early production use was complicated by the questions of where the server would be located and who would have the responsibility for the server's management. The DL work has coalesced into efforts to create a single database of records from the Alpha (and later, the Beta) implementers with the DL running the search. This will eventually serve as a "union catalog" for VALE and provide us with a starting point for scaling toward use by larger numbers of participants. As the work of Kuali-OLE also progresses towards the release of version 1.0 in December 2012, the notion that our server requirements will greatly change is amply evident. A system that will be both cost effective yet flexible to meet increasing needs makes the most sense. It became clear to us that the complex logistics of "who and where?" along with the mostly locked-in and inflexible reality of a physical server purchase made this option generally undesirable. Add the uncertainty of what our exact needs will be in the 2-5 year range, and the advisability of purchasing a physical server approaches zero.

After investigating two vendor-supplied, hosted server services, VOIT recommends that we contract with a vendor to obtain server resources. Such a cloud-based solution will eliminate the need to house a physical server at a new or existing site, provide for backup, failover, and emergency operations, and provide for server hardware administration and support. The costs

and complications of ownership are no longer factors. VOIT members would continue to provide application administration through secure shell (SSH) access to the cloud server.
The table below contains information obtained from Rackspace Hosting and Amazon Web Services. Both provided telephone and WebX-based proposal enquiry and support during the consultation. Both services provide various levels of support.

Specification	Rackspace Hosting	Amazon Web Services
Operating system	Linux	Linux
Web server RAM	8.2 GB	Web and database are not split. EC2 (elastic compute cloud) High Memory Extra Large. Scaled for heavy utilization. 17.1 GB memory, 6.5 ECU (2 virtual cores with 3.25 EC2 Compute Units each), 420 GB of local instance storage, 64-bit platform
Web server Hard Disk	320 GB	
Web server Virtual Cores	4	
Web server Bandwidth	$0.18 per GB (outbound), no charge (inbound)	
Database server RAM	2 GB	
Database server Hard Disk	80 GB	
Database server Bandwidth	$0.18 per GB (outbound), no charge (inbound)	
Support	Chat/phone/ticket 24x7x365 included	Local business hours support online (Silver pkg). $100/month
Total monthly recurring cost	**$753.20**	**$223.03**
Total annual cost	**$9038.40**	**$2676.36**

Obviously, the examples differ greatly in price, although the same scenarios and proposed implementations were framed to each vendor. Both Rackspace and Amazon offer a large range of tiered services and we specified a need for high processing ability to handle potentially large numbers of simultaneous users. Storage space for the bibliographic database is relatively inexpensive in both systems. Amazon Elastic Block Store (EBS) charges $0.10/GB/month ($100/month for a terabyte – 10 million average bibliographic records at 7Kb/per = 66.75GB = 0.065 TB) for more than adequate file storage space.

Perhaps the greatest advantage of cloud services is the ease by which they can be reconfigured. For example, Amazon Web Services feature the fact that processor and storage are flexible and so we pay a base rate and then are billed for what is actually used. Additionally, if we find that processor or diskspace need to be increased, they can be easily adjusted online.

The OLE test installation has been hosted on the Amazon EC cloud and so we know that there is basic compatibility between OLE and cloud hosting. Likewise, there is nothing about the DL that makes a cloud hosted solution intrinsically different from being installed on a server in New Jersey. When we consider that our VALE institutions will all be accessing resources from a remote, central server it matters little whether the actual server is located in New Jersey, as long as we have access and support.

In conclusion, it is the recommendation of VOIT that we continue our contacts with Amazon AWS, receive a full proposal for an initial tier of cloud hosting similar to that depicted above, and continue our DL implementation and, eventually, OLE implementation, in this hosted environment.

Kurt Wagner, WPUNJ (chair)
Grace Agnew, Rutgers (VOSC delegate to VOIT)
Guy Dobson, Drew
Ann Hoang, NJIT
Christopher Sterback, Rutgers
Yongming Wang, TCNJ