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**Socrates and Arachne Abatement Options and Recommendations
By Debbie Meads**

Purpose

In September 2007, IST announced to the campus the impending retirement of Socrates and Arachne scheduled for June 2008.

The TAM has been charged to lead a team of IST experts to recommend options for current users of Socrates and Arachne. This report will provide analysis on the current usage of these servers and recommend IST solutions or other campus options. The project team members contributing to this report are:

- Debbie Meads, TAM Project Lead
- Tom Cline, Self Care Tools
- Ora Prusanan, Unix Group
- Anthony Roybal, Self Care Tools

Overview and Next Steps

The Socrates and Arachne Unix servers are legacy systems providing academic computing and administrative web hosting services to campus.

Our team anticipates the financial impact for securing alternate services to be the major difficulty facing Socrates customers. The second concern is the range of technical skills of Socrates and Arachne users and the related level of migration support required of IST staff.

To overcome these obstacles we suggest the following next steps:

- Identify a project manager to oversee server abatement
- Create a detailed timeline to determine if the current June 2008 deadline is realistic
- Design a communication plan for both the campus and individual users
- Identify resources in IST to migrate customers to new services
- Determine customer needs for a centralized service offering statistical analysis applications

Socrates

In 1997, IST established the UNIX server Socrates as a general purpose computing service. It has been IST's most prominent academic service offering to the campus community. Socrates has been primarily used for computational programs, class accounts, web hosting and email. In 2005, email service on

Socrates was discontinued leaving web hosting as the primary service. As of February 2007, all Socrates accounts are non-billable. IST has provided Socrates accounts at no charge for research and instructional purposes under the campus-funded Academic Computing Resources (ACR) program.

Socrates is being retired in June 2008 due mainly to security vulnerabilities. Socrates was configured based on a shared server model. It is an open computing environment where users are given permission to install and run software without restrictions. This type of environment, while flexible for the user, is difficult to secure from a system administration standpoint. Installed software can be flawed, thereby allowing the system to be easily intruded and compromised.

In addition, the maintenance contract for the Socrates server is up for renewal. It is our system administrators' opinion that the decreased usage and vulnerability of the server does not justify the continued support and cost for maintenance.

Arachne

Arachne has been IST's web server offering for administrative departments since 2001. Arachne provides web hosting services based on the shared-file and shared-webserver model. This service hosts the main campus website and a number of high-profile departmental websites. Users are only charged for disk usage at the rate of \$9.29 per 250 MB.

Arachne shares some of the open computing characteristics of Socrates but to a lesser degree. The population mainly uses the system for web hosting purposes. Current users are limited in the type of applications they are allowed to execute. The server, however, is still prone to massive intrusion due to web application flaws that inadvertently allow a number of sites to be taken down in a single event. Given such security vulnerabilities, IST has decided to retire Arachne.

Method Used for Analysis

The project team analyzed the Unix accounting logs for usage statistics and program invocations to determine current usage rates. In addition, the project team interviewed the Socrates and Arachne support team for customer information.

Statistics / Analysis

Socrates

Usage Type	Accounts	% of total Accounts
Web hosting (dedicated port and port 80)	458	46%
General Unix (including file storage)	196	19%
Class Accounts	136	13%
Vendor applications	104	9%
Pine (email)	92	9%
Dedicated File Systems	12	1%
Total number of Socrates logins	998	

Arachne

Usage Type	Accounts
Web hosting	264
Sites using MySQL	3
Total number of Arachne logins	264

Recommendations

Web Hosting

Options

Users can move their current sites to IST's fee-based web hosting services. IST currently offers four types of web hosting to suit a range of needs. For users with content-only sites, IST offers the IIS-based Calweb or UNIX-based Calweb Pro service. These services provide a single environment. For users needing web application hosting, IST offers the Windows web farm and the UNIX web farm services. These services include three environment layers: development, QA and production. Users with simple websites can consider using Webfiles. Webfiles is a free IST service that is intended primarily for file storage. However, it may be adapted to host websites with certain limitations.

All of IST's web hosting offerings do not allow the installation of databases directly onto these servers. Instead, users are directed to use IST's database hosting service. This service is also fee-based. IST hosts a

range of databases to suit different needs. These include: MySQL, SQLServer, PostgreSQL, and Oracle. The lowest cost and most likely service for Socrates and Arachne users is the basic MySQL service, a single environment database service.

Issues

Academic customers have had free use of Socrates services since its inception. And while Arachne customers are currently charged for disk usage, these customers will incur additional setup and monthly fees for IST web hosting services.

Customers seeking to transfer their services to IST will have to consider setup, monthly web hosting and storage fees. Customers may not have received sufficient notice to budget for these unexpected costs.

Current published URLs for a website hosted on Socrates or Arachne would require a re-direct service in order for these sites to continue without breaking.

Vendor Applications

Vendor Applications	Accounts
Mathematica	35
Matlab	24
Stata	21
SAS	15
SPSS	9
Total number of logins using vendor applications	104

Options

IST currently does not provide any central service for computational applications for academic departments. However, given the significant improvements in desktop computers in the last ten years, users running statistical computation applications on Socrates can now run them on desktop computers.

Issues

The vendor applications run on Socrates have been included as part of the free service. Users will need to buy their own software as well as the computers to run them.

Class Accounts

Options

Users can use the bSpace service provided by Education Technology Services (ETS) for class work and communication. This service is free to campus users.

Issues

bSpace provides limited options with only two templates available for use by all websites.

Dedicated File Systems

Options

Users can make use of IST's VM service in combination with IST's storage services for these file systems.

Issues

Academic customers will have to pay for a service previously provided for free on Socrates.

General UNIX (including file storage)

Options

Given the significant improvement of desktop computers in the last ten years, users needing general UNIX services can now use desktop computers running Linux, BSD or MacOS operating systems. For file storage, users can use Webfiles, a free service from IST for up to 300 MB's of storage.

Issues

Users will need to bear the cost of acquiring and supporting new desktop computers.

Pine (email)

Options

Users can use a variety of other email client software programs such as Outlook, Thunderbird or Mutt to access Calmail.

Outstanding Issues

With the June 2008 retirement deadline approaching in 6-months, there are several outstanding issues that have yet to be resolved.

Because of out-of-date account management and a lack of sufficient account tracking it has been difficult to identify current users of these two systems. There has been no reconciliation between login accounts and billing data for Arachne. Also, some of our users do not have the resources or ability to relocate the services they are currently using on Arachne or Socrates to another solution.

IST will need to develop a plan to assist these users with relocating their services. Assisting these users will require resources from IST staff, adding to existing work load. Again, costs for some of these users may be an issue for these services that was available for no cost is now an unexpected budget issue.