

# Student Information Processing Board Report

Edward Z. Yang

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## Abstract

This document summarizes the contributions of SIPB to the MIT community at large through its electronic and physical presence.

## 1 Introduction

The Student Information Processing Board (SIPB) is the resident computing student group at MIT. Founded in 1969, SIPB has gone from maintaining the original `www.mit.edu` and distributing computing time on Multics to students to providing services such as shared hosting and virtualization to the student body.

## 2 Scripts

Scripts is SIPB's shared hosting service. The premise is simple: anyone with an Athena account can run a single command off of any Athena workstation and get a `scripts.mit.edu` account. `scripts.mit.edu` also takes it further by offering autoinstallers, which provide easy and convenient setup of web applications such as blogs and wikis.

As a result of this, Scripts is the most outwards facing service SIPB provides. We receive X hits a day—more hits than Stellar does during the school year (citation needed)—and maintain over 2600 users, including students, professors and—very occasionally—departments. Famous sites hosted on scripts include X, Y and Z.

The flexibility afforded by Scripts is unmatched by commercial shared webhosts. While a commercial webhost may only offer Perl and PHP as supported languages, Scripts goes beyond with Java, Python, Ruby, and is amenable to suggestions for more. We save student groups money by eliminating the need to pay an non-MIT webhost. We also offer a `*.scripts.mit.edu` SSL certificate, which is recognized by major browsers and would normally cost in the hundreds of dollars.

### 3 Debathena

Debathena is the technology powering the newest Athena workstations running Ubuntu Linux, as well as hundreds of Debian and Ubuntu desktops and laptops across MIT, by providing Athena workstation software via Debian packages and repositories. Originally a loose collection of Athena software packaged for Debian developed by a few SIPB members, Debathena has grown into Athena 10. It has been in testing in a few computer clusters since March 2009, and is slated to replace the current Linux-Athena 9 systems by the end of 2009.

Debathena offers a number of distinct advantages over the previous Linux-Athena system. It is modular, which means that users bring the advantages of the cluster machine to their own desktop or laptop—software such as integrated AFS locker and Kerberos support—without having to actually make their machine a cluster machine accessible by anyone with an Athena account. Being based on a modern Linux distribution also means that cluster machines with it gain improved usability in areas such as hotplugged device detection.

This project has also resulted in interesting new technologies for Debian packaging. In particular, `config-package-dev` is the cutting edge in distributing application configuration as regular packages.

### 4 XVM

XVM provides virtualization services to the MIT community. Virtual machines allow users to setup customized machines with their own operating systems and software without having to install a physical machine in a datacenter. While we don't give guarantees of uptime, we offer this service for free, and have a simple web interface for users to maintain their virtual machines and install one of many pre-canned operating systems from CDs.

The memory and storage requirements of virtual machines have resulted in an impressive hardware deployment in the SIPB machine room. In particular, four Dell PowerEdge SC1346s with a dedicated back-end network to an Equallogic iSCSI storage array with 10.5T of usable storage power XVM. (ADD STATISTICS HERE.)

Virtualized hosting is still a relatively nascent technology, especially for such a large deployment, and during the development of XVM as a service SIPB went through several iterations of distribution/release pairs while attempting to find software that would fulfill our needs. This meant physically swapping out the CDs in the conveniently located machine room.

### 5 Linerva

Linerva is a Linux dialup server run by SIPB for the MIT community. Compared to other dialup services, Linerva offers speed, an unparalleled selection of Linux software (both Athena-based and not) and arbitrarily long sessions. One of the

standard use-cases for Linerva are Barnowl sessions, which allow users to keep track of messages on zephyr even when they are not logged in.

The service runs on a dual-core AMD Opteron 1.8Ghz, and runs 24 gigabytes of RAM in order to service all of the persistent sessions. Since there is always consistently a high number of users using the service, installs and upgrades to Linerva occur during early-morning hours.

## 6 LAMP

LAMP is a completely legal electronic music library, jointly maintained by SIPB and MIT Cable Television. Users can use a web interface to queue up songs on various channels, which then can be played back on any sound system hooked up to MIT cable. Over its life, LAMP has had over two thousand unique users.

In order to deal with legal issues, LAMP has an unusual hardware setup. It has two entire racks of CD changes and an MP3 encoding machine with the usual webserver. The webserver and control logic live in the SIPB machine room, as well as 2,000 CDs that get periodically re-ripped (in order to keep LAMP a broadcast service).

## 7 Miscellaneous projects

In addition to its flagship projects, SIPB maintains a number of smaller projects that, while not as large in size, contribute to the computing experience at MIT. These include QuickPrint, which allows users to easily print to Athena printers from Windows without having to go through the arduous configuration process and our own AFS cell, which maintains several well known lockers such as “outland” which provide useful extra software that many users load by default in their Athena sessions.

(Surely there’s other stuff)

## 8 Social activities

In addition to providing a wide variety of technical services, SIPB also hosts a number of social events which range in purpose from educating to working on projects.

Though not an event per se, the SIPB office is always open to the public, whether they want to use a stapler or ask a question about software or hardware. The office is staffed with people happy to help users troubleshoot their issues.

During the fall, SIPB hosts a series of talks called Cluedumps, in which SIPB members give informal lectures on technical subjects. Topics in the past have included Git (a version control system) the Linux Kernel and Kerberos. These talks draw a mix of both SIPB members as well as the general MIT community interested in computing.

Over IAP, SIPB members organize classes on a variety of computing topics. Classes include “caffeinated crash courses”—so called because they contain more information than should be reasonably covered within a three hour period—as well as more laid back classes on things such as web application security, the Internet, and Unix. Of special note is “Caffeinated 6.001”, which is the old introductory computer science taught entirely by former students in only a month. Turnout for these classes is excellent; the classes attract people from both inside and outside of the MIT community.

Less widely publicized events, though open to SIPB members and prospectives alike, include hackathons, which are quasi-monthly days (usually on Saturday or Sunday) when people congregate and work together on a project. Such sessions tend to be very productive: we have held bug-squashing sessions for Debathena as well as documentathons.

SIPB also holds a reading group every Monday, in which a technical paper about some aspect in computer science is read and then discussed over dinner. Papers have ranged from discussing complexity theory to distributed computing in the eyes of a former Assassin’s Guild player.

## 9 Conclusion

The Student Information Processing Board offers a wide array of services to the MIT community that complement IS&T’s services. Many of these services have become indispensable to the community. Usage of these services is always growing, and SIPB members are constantly maintaining them, adding new features, and entertaining proposals for new projects. Continuation of these services depends on the continued funding, support and physical presence of the SIPB.