CASE STUDY

Linux Operating Systems – Supporting a Rapidly Evolving Customer Environment

CHALLENGE

Based on several business and customer-related issues, the State's central IT organisation, Strategic Technology Solutions (STS), was facing a significant increase in the use of Linux operating systems in their technical infrastructure. Agencies had been installing hundreds of additional Linux servers, which resulted in Linux comprising nearly 50% of the servers in the State's infrastructure. STS' Linux Resource Team knew they needed to do something to provide their team with the knowledge, skills, and abilities to support this rapidly changing environment. Although they were a very experienced team, they needed to quickly and efficiently advance their Linux skills to meet increasing customer demands.

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SOLUTION

IT Academy partnered with the Linux Resource Team to develop a Linux-focused curriculum path, covering everything from fundamental skills training to industry-recognized certification, validating the skills taught in the curriculum. This technical training path included:

- Linux Introduction
- Linux Administration and Support
- Linux 0ptimisation and Troubleshooting
- CompTIA Linux+ Certification Exam Prep

Course content featured a wide range of Linux graphical and command-line tools. State employees learned how to create, edit and search Linux files and directories, limit access within file systems by controlling permissions and ownership, exploit Bash shell features to enhance the command-line interface, and perform multiple tasks in shell scripts.

Through a series of extensive hands-on exercises, these employees learned to build and configure new Linux installations, as well as troubleshoot and support existing installations.

They also gained experience with critical Linux administrative tasks, including the management of users and groups, the addition of storage hardware, the creation of file systems, the configuration of network connections, and the provision of file and print services for both UNIX and Windows clients. The resulting network of advanced servers was then used to build a high-availability load-balancing cluster. This path also offered in-depth coverage of the configuration and construction of the Linux kernel, the core of the operating system.

In addition to the training and hands-on exercises that took place in IT Academy classrooms, attendees were also provided with post-course technical resources including scripts, logic, and configuration recommendations.

DELIVERABLES

As part of their statewide IT workforce development program, IT Academy delivered instructor-led Linux training to more than 50 attendees. Additionally, at least ten Server Administrators have attended post-course chat sessions with IT Academy Subject Matter Experts. These sessions provided the employees an opportunity to discuss the practical application of the skills taught in the classrooms, after returning to their work environments.

ON A 4.0 SCALE...

Average score of COURSE CONTENT

Average score of COURSE INSTRUCTORS

Scores exceeded IT Academy's goal of 3.65 in these two categories.

RESULTS

Course attendees evaluated the course content at a score of 3.69 on a 4.0 Likert scale, with IT Academy's course instructors averaging a score of 3.89 for their ability to facilitate these training classes. Most importantly, course attendees reported an average performance improvement of 20% when returning to the office and applying the skills gained in class.

Feedback from the Linux Resource Team leadership suggests that Server Administrators are leveraging the skills learned in the classroom to significantly increase their efficiency and productivity on their projects. The team of 11 employees serviced 500 customer tickets in one month, this in addition to their regular job duties. Multiple employees from projects across the State's agencies are reporting significant practical application of the skills taught in class on their projects.

35 POINTS

AVERAGE KNOWLEDGE IMPROVEMENT PER INDIVIDUAL TRAINING EVENT*

Knowledge improvement based on IT employees' pre-and post-course exam scores

20%

AVERAGE PERFORMANCE IMPROVEMENT FROM SKILLS LEARNED IN THE CLASSROOM

Results are an average of reported performance by attendees

POST-COURSE ACCOMPLISHMENTS

" Since taking these courses, I have been able to use the Linux server volume management tools. I have also been able to have more knowledgeable conversations with our Linux administration team. I was able to use these skills working on the STS Enterprise Information Architecture project."

— S. Steele, *Information Systems Consultant*
Strategic Technology Solutions

" I work on the Transportation management center network refresh. I am configuring Cisco routers, switches, and firewalls. Some devices run a hypervisor for applications that may be packaged in a Linux image. I now have a better handle on how the file system is laid out and connected. Understanding that every program has a configuration file that can be used to reference and troubleshoot errors with. I have been using programs in Linux to find precise files, reporting disk space usage, mounting network file shares."

— D. Boles, *Network Operations Administrator*
Department of Transportation

" I am assisting in many Edison projects. Around 80% of their servers are Linux so they all require the skills that I've learned in class. I've used many of the commands taught in class to manipulate files, diagnose networking issues, and other problems."

— W. Cherry, *Server Administrator Tennessee Strategic Technology Solutions*