Consolidated Web-Based IT Architecture for the Singapore Department of Statistics

Introduction

In response to the changing IT technology trends and in support of the new requirements and statistical development plans, the Singapore Department of Statistics (DOS) has put in place a regular IT strategic planning framework to review the direction and approach as well as to establish new, better and more sustainable IT infrastructure / platform and solutions. The main objective is to leverage IT technology to cater to DOS' dynamic business needs and enhance the service level of DOS' outputs and deliverables.

Such infrastructure planning is essential to provide DOS with the adequate level of IT infrastructure more cost-effectively, taking into account the economic lifespan of the IT assets. This would reduce possible system downtime and minimise disruptions to DOS core operations arising from the lack of specialised IT expertise from vendors, replacement parts / components and de-support of software version for the hardware and software acquired earlier.

Consolidated IT Technical Architecture

For the next five years, an overall IT technical architecture has been drawn up to support the various application systems in DOS. It focuses on the consolidation of storage and system hosting to provide for system redundancy and scalability as well as to achieve optimal cost effectiveness.

Alongside with the IT technical architecture, DOS also reviewed, streamlined and re-developed the application systems. The current client-server based software versions will be phased out and the systems will be redeveloped and moved onto the Web-based platform to allow for flexibility going forward.

Why Web-Based?

Web-based applications have evolved significantly over the recent years and there are vast improvements in both the technology and security aspects of web-based platform. DOS is in the process

of revamping its application systems onto the web-based architecture to provide better technical support for the various application systems and facilitate the ease of deployment, expansion and scalability, manageability and security. Some significant features of Web-based platform and applications are highlighted below :

Cross Platform Compatibility

Most web-based applications have a higher degree of compatibility across platforms compared with those developed on traditional installed software. Typically, the minimum requirement to run Web-based applications on a client is the availability of a web browser, for example, Internet Explorer, Mozilla Firefox, Opera and Safari. The web browsers can be installed and launched from a multitude of operating systems which makes deployment easy and the applications could be run with minimal effort and support.

The application once written could be deployed to run on any application server. Users can access the web application via its website address and login via the Internet / Intranet access. In this way, services and information are readily available from any web-facilitated PC or notebook.

Expansion and Scalability

All DOS web-based applications are built on a 3-tier (presentation, application and data) architecture. With this set up, changes in one layer do not greatly affect the others except for the access points that connect the layers. The 3-tier design allows any of the three tiers to be upgraded or replaced independently. This allows DOS greater flexibility in designing and implementing the web-based applications to meet its requirements as well as future growth and expansion.

Improved Manageability

Web-based systems normally need only be installed on the server placing minimal requirements on the end user workstation. This makes maintaining and updating the system much simpler as the enhancement can all be done on the server. Any client updates can be deployed via the web server with relative ease, thus improving manageability of applications.

Secure Live Data

Web-based applications offer better security for data as enforcement of security policies, e.g. firewall and network rules, security patches and disabling of system services, can be done more effectively at the different servers. This helps to enhance the security of the environment as additional layers will further minimise unauthorized access to data.

Benefits

The consolidated infrastructure set-up has enabled DOS to leverage the common IT architecture to optimize servers, storage resources, network and manageability. With a smaller number of servers to be deployed in the consolidated infrastructure, DOS is able to reduce the one-time and recurrent costs. It also facilitates data access to the related systems in a seamless manner as these systems are hosted on the same infrastructure. The consolidated infrastructure which comes with higher capacity will improve DOS IT scalability and system performance. This will better support DOS business operations in providing more timely statistical information.

The Government has embarked on the implementation of a Standard ICT Operating Environment (SOEasy) that aims to increase the agility and robustness of the ICT infrastructure and enhance user convenience while achieving cost savings. By re-developing its application systems into web-based platform, DOS will also be able to better align with the SOEasy and reap the benefits that SOEasy brings as the web-based architecture allows DOS to be client-independent and maintain a standardized desktop. As applications are deployed at the servers' end, this reduces administrative and customization effort in desktop management.

Conclusion

Both the set up of a consolidated IT infrastructure and the re-development of the application systems to the web-based platform underscore the importance of the use of relevant and advanced IT technologies to meet DOS requirements. These offer DOS competitive advantages to consolidate and upgrade its systems and processes to achieve a better outcome of providing more timely data and enhanced service level.

Overseas Visitors

The Singapore Department of Statistics (DOS) received the following visitors over the past seven months.

Topics discussed included the recent performance of the Singapore economy and national accounts topics.

Australia

– Australian Bureau of Statistics

Mr Michael Davies
Head, National Accounts Branch

Hong Kong

– Census & Statistics Department

Mr Alvin Li Wong Kong
Assistant Commissioner