The Cisco Application eXtension Platform: Doing More with Less

The Cisco® Application eXtension Platform (AXP) extends the integration technology capability of integrated services routers to the next level. It enables third parties such as independent software vendors, systems integrators, managed service providers, and large enterprise customers to extend the functionality of the router by providing their own value-added integrated services customized to the individual business.

Cisco's AXP is the foundation for a new class of network-embedded applications and solutions. These applications natively use routing capabilities and real-time network information and conditions in the network by interacting with routing functionality. The Cisco AXP changes how these applications are deployed, integrated, and managed by delivering an integration capability for branch applications. AXP truly uses the network as a platform and enhances the performance of the application by interacting with common network services such as authentication, security, and routing to applications.

AXP can be separated into two fundamental areas:

- The facilities and frameworks to host third-party applications
- The service APIs to integrate the application into the network

Based on the above tenets, there are a few primary areas of cost savings in owning and operating an AXP-based environment. We created a Total Cost of Ownership (TCO) model to elaborate upon the possible cost savings. This model is based on rigorous research and empirical data from use cases. This is a model utilizing operational expenses in a scenario with 10 branch-office sites. Each branch office is estimated to have an average of 50 employees. The model accounts for expenditures over a three-year lifecycle.

Development Costs

Reduced effort for development of network-hosted applications and services accounts for a majority of the cost savings. In the case of the AXP-based model, because the network is being utilized as a platform, there are savings in terms of time and development costs because of the integrated services and libraries and the APIs, which allow developers to access them. The application is able to deal directly with the network and partake from Cisco IOS® Software integration APIs and use the features of the router, including packet monitoring, Cisco IOS Software information, event triggers, Cisco IOS Software configuration, and the ability to reach out and control serial and USB devices.

The AXP facilitates three primary application access modes: direct access, promiscuous access, and injected access. This available support structure makes it easier to develop, build, test, deploy, and manage components related to network-hosted applications. This allows improved flexibility because of interaction with common network services such as authentication, security, and routing to applications. It also provides an improved time to value with cost-effective solutions due to the extensible CLI for Cisco IOS Software APIs. All of these capabilities provide savings of time and development costs by utilizing prebuilt mediations and libraries.

The time required for development of new features for the network-embedded application accounts for approximately one-third of development costs. Based on the TCO model, using the AXP reduces this development time by approximately *half* and therefore has a positive effect on development costs. There is a similar effect on other larger components of development costs, namely, testing, qualification, and documentation.

Integration Costs

These are costs involved in configuring and integrating the application server, security device, and branch office router: the costs of bringing together a heterogeneous environment to allow transparent operation to achieve business goals. The modular architecture of integrated services routers enables faster integration of existing network services with network-hosted applications. The related costs of multiple integrations start to have an effect with repeated configuration across multiple locations and sites to achieve a consistent experience in the branch.

Based on the TCO model, it takes approximately *one-fourth* of the effort to own and operate an AXP-based solution in comparison to the diverse appliance scenario.

Maintenance Costs

These involve time and costs related to implementing patches, upgrades, and updates. In a multiple-appliance scenario, a large portion of the costs of appliance upgrades in a branch is related to the number of service visits. To reduce costs, it is crucial to minimize the frequency and severity of site visits. With two diverse appliances, it gets costly to add any additional capabilities without upgrading to new hardware, perpetuating complexity in the branch office while reducing the agility and response time of the IT support team. What also add up are annual maintenance contracts, both for hardware and for software.

Consistent with the TCO model, cost comparisons shows that owning and operating an integrated environment costs *little more than half* of what it would cost in an appliance scenario because both upgrades and annual maintenance costs are reduced.

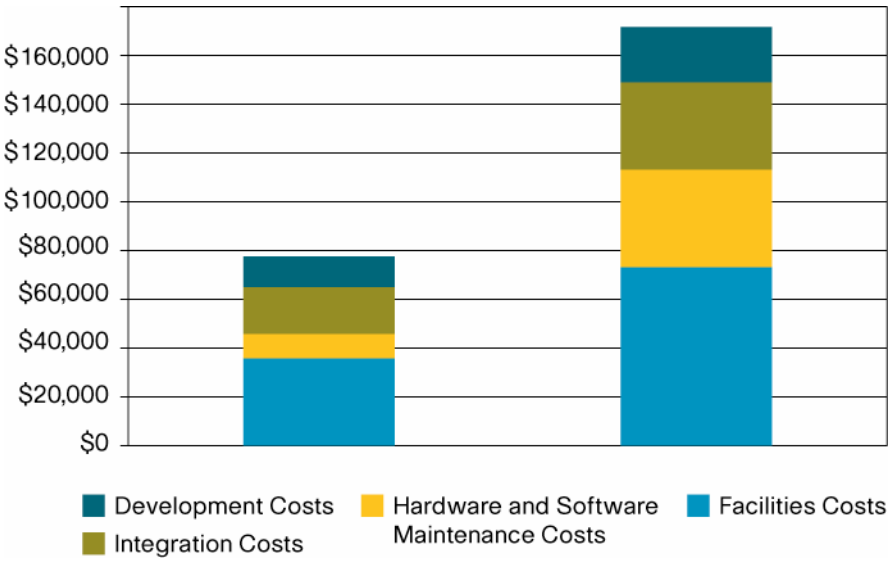
Facilities Costs

Another cost to be accounted for is facilities costs, including power and cooling requirements. Owning an integrated device obviously results in remarkable savings related to power and cooling requirements and is undisputedly a greener alternative. Resource consumption is markedly lower when compared to independent appliances.

Based on the TCO analysis, it costs little more than halfin terms of power and cooling for an integrated device as opposed to an appliance scenario.

Figure 1 illustrates the consolidated cost savings from the TCO model.

Figure 1. Consolidated Cost Savings



As shown in Figure 1, there is a clear savings of $87,000 in a 10-branch scenario over three years. These savings indicate that the *AXP basically pays for itself* during the three-year lifecycle as compared to assumed TCO of a system of independent appliances.

The second-order benefits of utilizing the technology in the AXP include the possibility of running multiple applications on a virtualized OS. Instead of running several servers at low utilization, you can run one AXP blade at optimum capacity. This enables money savings as well as fewer administrating staff.

The high level of compartmentalization and partitioning helps ensure that even if there is a sharing of resources across multiple environments—for example, if one application were to stop operating—there is no risk of it affecting the performance of other applications running on the same blade.

Finally, this model is conservative—it does not account for the corporate gains based on benefits such as value to the business of higher availability, increased employee productivity caused by low downtime, increased agility, faster time to market, and improved application performance in addition to a host of smaller savings.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

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