

# A Cost Analysis Overview

Open Text Exceed onDemand

Remote X Window Application Delivery Solutions

Connectivity Solutions Group  
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## Overview

Centralization and decentralization are two opposing management concepts. One suggests that the control of resources or decision-making power lies in the hands of one person, department, or governing entity. The other advocates empowering discrete branches or regional satellite offices to control resources or make decisions.

Choosing one management style over the other depends on a number of factors. In the real business world, rarely is there one single factor that triggers the change of management style; rather it is a combination of external industry influences and internal corporate strategic objectives that determine the structure of the company. Often, centralized systems are formed to manage costs and exploit economies of scale, while decentralized systems seek to decrease process inefficiencies in an attempt to increase productivity.

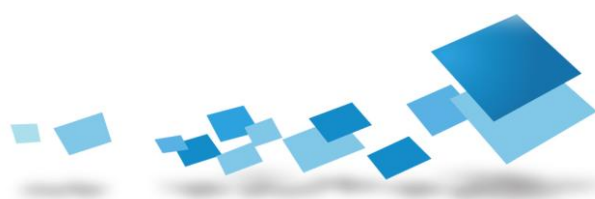
This whitepaper demonstrates a business environment where the geographical barriers between users and servers are no longer a deciding factor in determining the architecture of a business' IT infrastructure. By harnessing a solution that eliminates both the latency and performance degradation associated with long-distance Internet communication, while maintaining centralized control, companies will be in a unique position to increase productivity and cost benefits.

We propose and prove that Open Text Exceed onDemand provides this solution for X Window applications because of its sophisticated architecture, which gives it power, flexibility, and security to meet business needs.

To illustrate our hypothesis, we provide the results of a simulated study using a test multinational manufacturing company. The objective is to evaluate both decentralized and centralized scenarios within this company. In the decentralized scenario, the cost of delivering and maintaining X applications in branch offices is evaluated. In the centralized scenario, we appraise the effectiveness of Exceed onDemand in the quest to cut down IT costs.

While this study is simulated, we use techniques to accurately represent a real-world company with real-world challenges.

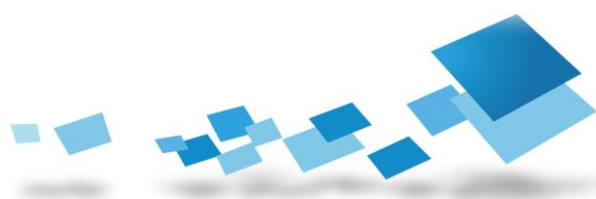
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## ACME Corporation

### *A World Premier Semiconductor Company*

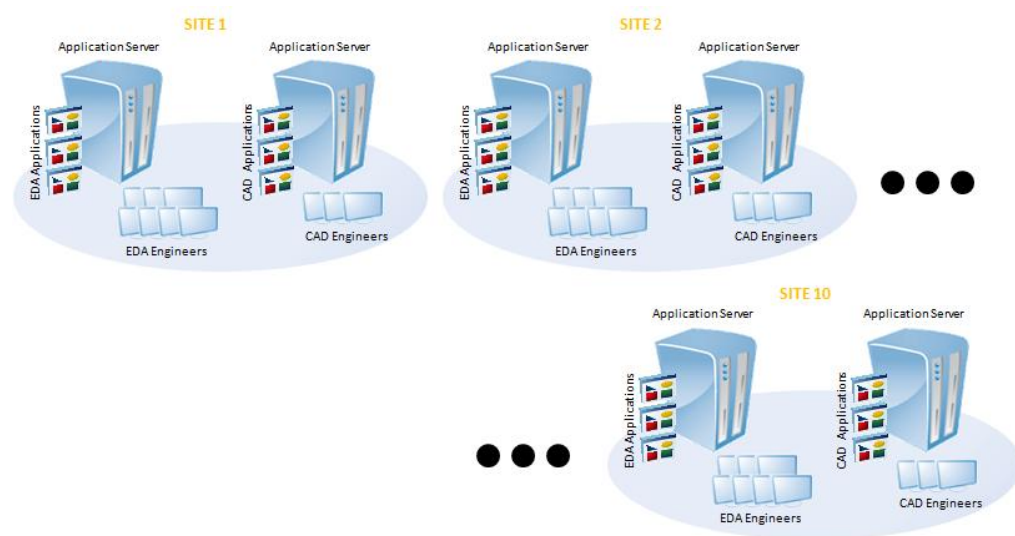
ACME Corporation is a multinational company, and its core business is the design and manufacture of high-performance semiconductor products for multiple markets. With research and development centers spread out across the globe, ACME develops some of the most advanced and sophisticated designs. Like most companies in the business world, ACME is under constant pressure from upper management and shareholders to increase efficiency and the monetary return on each dollar that is invested. Because of this pressure, they need to evaluate operational strategies that support this objective.



## Scenario A: Decentralized System

ACME has 10 Research & Design (R&D) centers in total—five in the US and the rest in the Pacific Rim. There are 10 design engineers in each R&D center, and these are divided into multiple groups; some groups are working on projects independently, while other groups are collaborating on projects. Because of the dispersed user population and the poor performance of UNIX-based EDA (Electronic Design Automation) and CAD/CAM (Computer-Aided Design and Computer-Aided Manufacturing) tools over the WAN, the company has decided to create identical IT infrastructures in each branch office. By doing this, users have faster access to local applications and data instead of being subject to the unpredictable performance caused by Internet traffic.

Each site is outfitted with three entry-level servers equipped with the EDA Tools needed to support 7 EDA engineers out of the 10 design engineers in total. Because of the high graphic demand of CAD/CAM tools, one mid-level server can support 3 CAD/CAM engineers. The company also invests in a storage server on each site in order to safeguard the project data. Setting up the hardware and applications on each site requires professional services provided by vendors. Administrators also need the appropriate training in order to provide basic support and perform regular maintenance on the hardware and applications.



The following table is a summary of various costs:

Table 1:  
Breakdown of current IT  
infrastructure cost

	Per Site	Company-Wide (10 Sites)	Operating Cost for Three Years	
<b>One-Time Costs</b>	<b>Acquisition Costs</b>			
	3 Entry-Level Application Servers (@ \$15,000 per server)	\$45,000	\$450,000	\$450,000
	1 Mid-level Application Server (@ \$28,000 per server)	\$28,000	\$280,000	\$280,000
	1 Entry-level storage server	\$5,000	\$50,000	\$50,000
	100 Exceed Licenses (Based for list price @ \$257 per license)	\$25,700	\$257,000	\$257,000
	30 Exceed 3D Licenses (Based for list price @ \$112 per license)	\$3,360	\$33,600	\$33,600
	<b>Subtotal</b>			<b>\$1,070,600</b>
	<b>Setup Costs</b>			
	6 days of onsite professional services (@ \$3,000 per day)	\$18,000	\$180,000	\$180,000
	2 days of administrative training (@ \$2,000 per day)	\$4,000	\$40,000	\$40,000
<b>Subtotal</b>			<b>\$220,000</b>	
<b>Recurring Costs</b>	<b>Ongoing Costs</b>			
	Hardware Maintenance (@ 20% of acquisition cost)	\$15,600	\$156,000	\$468,000
	Software Maintenance (@ 18% of acquisition cost)	\$5,231	\$52,310	\$156,930
	Labor (@ 4 hrs per year per server @ \$50 per hr)	\$1,000	\$10,000	\$30,000
<b>Subtotal</b>			<b>\$654,930</b>	
<b>Total Cost of Ownership for 3 years</b>			<b>\$1,945,530</b>	



## Cost Breakdown

There are three types of costs associated with setting up the IT infrastructure in a new office: acquisition, setup, and ongoing. Only variable costs, which are costs that are affected by specific structural changes, are included. Fixed costs are omitted.

### Acquisition Costs

Acquisition costs are the investments made for the acquisition of hardware and software necessary to set up the infrastructure. Please note that the software license cost for EDA and CAD/CAM tools are deliberately excluded from *Table 1*, because the number of licenses required by the company is almost solely dictated by the number of engineers employed or engaged in projects. The shifting of the IT paradigm, as suggested in this whitepaper, has a localized impact only on the IT structure, not the R&D structure; therefore, the number of engineers is unchanged. As a result, the software license cost for EDA and CAD/CAM applications is not affected. In other words, if the company has to purchase 70 licenses of an EDA tool and 30 licenses of a CAD/CAM tool for all engineers under the current setup, these 100 engineers still need the same number of licenses to run those EDA and CAD/CAM tools after the paradigm change.

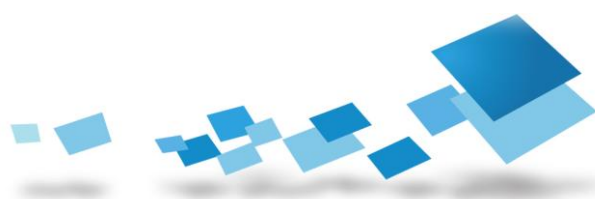
The hardware acquisition cost is shared between application and storage servers. Since the user base is small on each site (10 engineers) it is sufficient to have entry and mid-level application servers and one entry-level storage server.

### Setup Costs

It is mostly the cost of professional services that makes up the setup costs: an onsite service to set up application servers, the storage server, and the applications. Assuming that vendors need one day to set up each server and one day to set up applications, a total of six days of professional services are needed. The company also has to provide knowledge transfer for the administrators in each branch office, so they must be trained to handle some of the day-to-day routine maintenance, and to provide basic first-level support.

### Ongoing Costs

This category is divided into two types: maintenance costs and labor costs. The maintenance costs for the EDA and CAD/CAM tools are excluded from *Table 1* as they are fixed and unaffected by the paradigm change. The only software maintenance cost included is for Exceed and Exceed 3D and, as we demonstrate in this document, their needs for Exceed and Exceed 3D can be replaced by



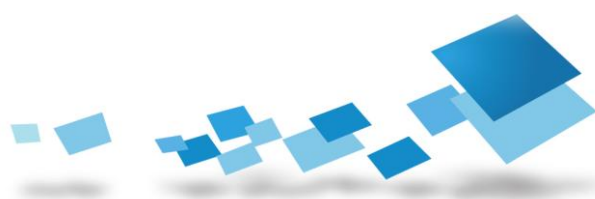
Exceed onDemand, hence it is important to include their acquisition and maintenance costs in this table. Hardware maintenance costs represent 15 percent of the initial purchase cost.

The labor costs account for a portion of the salary of an administrator. An average administrator has a multitude of job responsibilities, and supporting the engineering department is just one of them. We are calculating that each server in each site will require 4 hours of regular administration throughout the year, and the labor cost is \$50 per hour.

The main advantage of ACME's current setup is proximity. It is a well known fact that the performance of an X Windows application, such as an EDA tool, is directly related to the network performance; the slower the performance of the network (high latency and limited bandwidth) the poorer the responsiveness of the X application. By placing users and applications in the same physical location, higher performance is almost guaranteed. However, the cost of proximity is high—setting up and maintaining additional hardware, acquiring additional software licenses, and administering and supporting applications and data are all costly and ultimately affect the organization's bottom line.

As shown, over a three-year period, the decentralization strategy costs the company \$1.9 million—66 percent of which is the one-time cost of hardware and software acquisition and setup. The ongoing support and maintenance cost is 34 percent of the three-year spending. In five years, this ongoing spending increases to 46 percent of the overall operating cost.

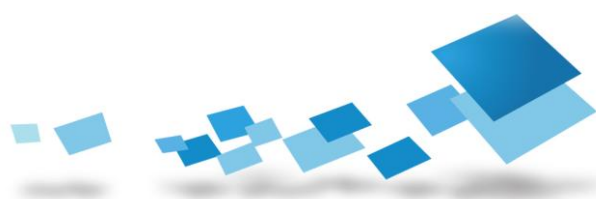
ACME, like any other company, is trying to keep costs under control, and any product or technology that can help lower costs brings positive changes to their bottom line.

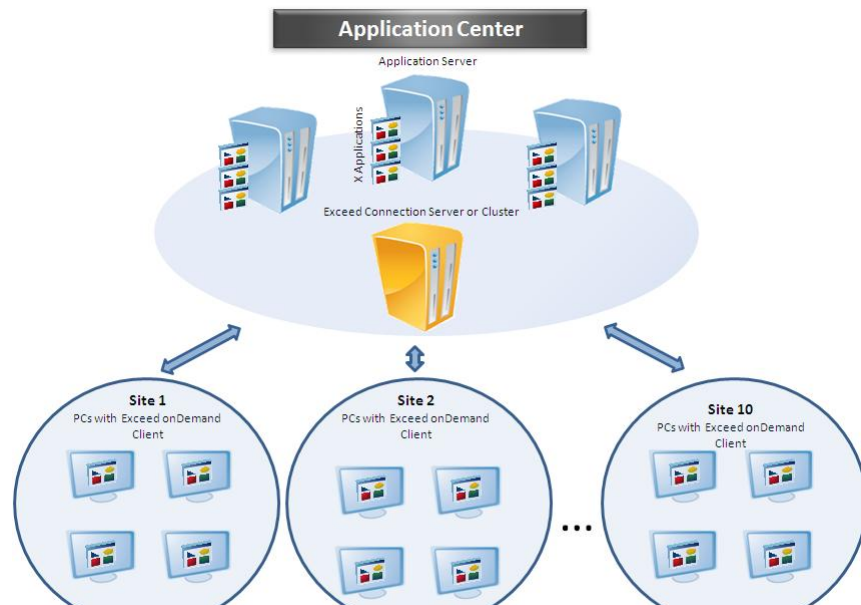


## Scenario B: A Centralized System Using Exceed onDemand

The strongest argument for using a decentralized architecture is its ability to circumvent the effects of the poor performance of X applications over a slow network. The root of the performance issue can be found in the X Window protocol itself. The X Window system was developed in 1984. The goal was to create an operating environment that was truly hardware and vendor independent. The protocol it used was called X Protocol. It was designed to run on a Local Area Network (LAN), where bandwidth was high and latency was low. However, the terms “high bandwidth” and “low latency” can rarely be used to describe Wide Area Network (WAN) or Internet connections. A new protocol was urgently needed in order to create a server-based PC X server that could efficiently link the users to applications over any type of network connection, hence the birth of Thin X Protocol (TXP) by Open Text Connectivity Solutions Group. Exceed onDemand is designed to remove the technical barrier imposed by distances. Armed with TXP, Exceed onDemand allows engineers from afar to access complicated and graphically intensive X Window applications, such as EDA and CAD/CAM tools, while maintaining a high level of performance that can rival that of running tools on a local network. Exceed onDemand can nullify one of the strongest arguments for using a decentralized architecture.

Instead of creating pockets of servers to service a small number of users, IT managers can now exploit economies of scale by creating an application center outfitted with fewer but more powerful application and storage servers. With the reduced number of physical machines, the company can also reduce administrative costs.

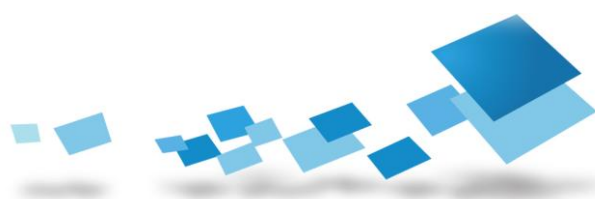




The following table is the summary of IT expenses after the transformation:

Table 2:  
Breakdown of IT  
infrastructure cost after the  
transformation

	Application Center	Operating Cost for Three Years	
One-Time Costs	<b>Acquisition Costs</b>		
	7 High-level Application Servers (@ \$46,000 per server)	\$322,000	\$322,000
	5 Enterprise-level Application Servers (@ \$30,000 per server)	\$150,000	\$150,000
	1 Mid-range storage server (@ \$15,000 per server)	\$15,000	\$15,000
	100 Exceed onDemand Named licenses (@ \$257 per named license)	\$25,700	\$25,700
	<b>Subtotal</b>		<b>\$512,700</b>
	<b>Setup Costs</b>		
	9 days onsite professional services (@ \$3,000 per day)	\$27,000	\$27,000
	3 days of administration training (@ \$2,000 per day)	\$6,000	\$6,000
	<b>Subtotal</b>		<b>\$33,000</b>
Recurring Costs	<b>Ongoing Costs</b>		
	Hardware maintenance (@ 20% of acquisition cost)	\$97,400	\$292,200
	Software maintenance (@ 18% of acquisition cost)	\$4,626	\$13,878
	Labor (@ 4 hrs per year per server @ \$50 per hr)	\$2,600	\$7,800
	<b>Subtotal</b>		<b>\$313,878</b>
<b>Grand Total</b>		<b>\$859,578</b>	



## Cost Breakdown

### Acquisition Costs

One of the main advantages of centralization is the benefit of economies of scale. In the case of the decentralized deployment scenario, ACME purchases in excess of \$780,000 worth of servers to support 100 users spread over 10 different sites. Through centralization, the company can purchase seven high-level servers for \$46,000 per unit that can service up to 70 EDA engineers, and five enterprise-level servers of 30,000 per unit that can service up to 30 CAD/CAM users. The total server acquisition cost is reduced by close to \$300,000 and brings the total cost down to \$487,000. In other words, because of the centralized strategy, the company can afford to purchase more expensive and powerful machines, while lowering the per-user cost.

The enterprise-level servers are able to take advantage of the server-side rendering feature available in Exceed onDemand, which improves performance of the CAD/CAM tools over the Internet. Exceed onDemand is the connectivity tool that links remote users to the applications, and it replaces the Exceed and Exceed 3D licenses. The purchase of Exceed onDemand licenses is a new expenditure that is the result of the change in the IT paradigm; therefore, it must be recorded in *Table 2*.

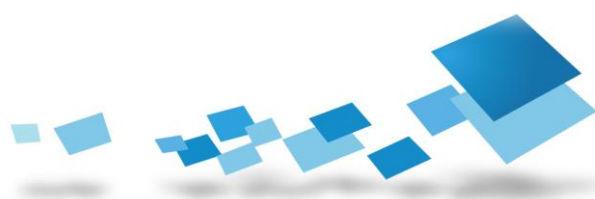
### Setup Costs

Instead of setting up 50 servers and training 10 administrators in 10 different locations, the company only has to recruit the help from vendors to set up servers and the application, and provide training for two administrators in one central location. The difference in spending is \$187,000, resulting in over 85 percent in savings.

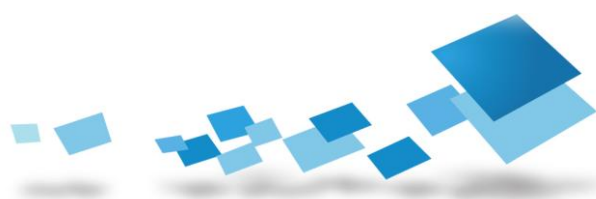
Aside from the obvious financial benefits, the new setup also has an intangible advantage: consistency. Application servers and the EDA, CAD/CAM tool are set up and configured by a single team of professional service consultants, as opposed to 10 teams in 10 locations, which may yield 10 different configurations. The same applies to training; instead of 10 trainers teaching 10 variations of a course syllabus, administrators are taught by the same instructor on the same material. Consistent configuration and training can lead to higher uptime and increased productivity.

### Ongoing Costs

The company still has to pay maintenance costs for the hardware and the administrators' salaries. Since hardware costs and the number of administrators



decrease, these recurring costs also decrease. Exceed and Exceed 3D software maintenance costs are now replaced by those for Exceed onDemand, calculated at 18 percent of the purchase price. The ongoing cost savings is an impressive 52 percent in three years!



## Summary

Utilizing the power and the performance of Exceed onDemand and its ability to eliminate the effect of distance by virtually drawing users and applications closer together, ACME can now implement the centralization strategy. The results are the reduction of acquisition, setup, and ongoing costs—both in the short and long term.

Table 3 displays the operating cost savings from changing the IT paradigm from a decentralization strategy to a centralization strategy.

Table 3:  
Transformation can bring down the operating costs by 64 percent

Costs	Decentralization	Centralization	Saving
Acquisition	\$1,070,600	\$512,700	52%
Setup	\$220,000	\$33,000	85%
Ongoing	\$654,924	\$313,878	52%
<b>Grand Total</b>	<b>\$1,945,524</b>	<b>\$859,578</b>	<b>56%</b>

AMCE can eliminate the repetitive exercise of setting up duplicate IT infrastructures in multiple offices and the unnecessary IT expenses. Centralization can lead to higher efficiency in utilizing computing resources.

While this was a controlled study, we do appreciate that there may be other factors supporting a decentralized strategy. The choice of management style does not simply hinge on the performance of the application but on a multitude of factors; namely, the business requirements, security mandates, the application type, server specifications, the perception of performance, and many others. The figures presented in this document can serve only as a reference. Readers interested in creating their own cost analysis are encouraged to further expand on the idea and create an analysis that meets the needs of their unique business environment.



## About Open Text Connectivity Solutions Group

Open Text's leading Connectivity Solutions connect people, data and applications in mission-critical environments through a complete line of remote application access and data integration solutions. With 90 percent of Global 2000 companies relying on its award-winning solutions for over 20 years, Open Text understands the financial and operational challenges that most organizations face, whether they are multiple systems, disparate data sources, or geographically dispersed teams.

## About Open Text

Open Text is a leader in Enterprise Content Management (ECM). With two decades of experience helping organizations overcome the challenges associated with managing and gaining the true value of their business content, Open Text stands unmatched in the market.

Together with our customers and partners, we are truly The Content Experts™, supporting 46,000 organizations and millions of users in 114 countries around the globe. We know how organizations work. We have a keen understanding of how content flows throughout an enterprise, and of the business challenges that organizations face today.

It is this knowledge that gives us our unique ability to develop the richest array of tailored content management applications and solutions in the industry. Our unique and collaborative approach helps us provide guidance so that our customers can effectively address business challenges and leverage content to drive growth, mitigate risk, increase brand equity, automate processes, manage compliance, and generate competitive advantage. Organizations can trust the management of their vital business content to Open Text, The Content Experts.

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