



# A Holistic Approach to Understanding Information Technology (IT) Costs



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# Agenda

- **Introduction**
- **Information Technology (IT) Budget – What's Really in There**
- **What IT really costs – cost drivers**
- **Supporting Good Decisions with Total Cost of Ownership (TCO)**
  - Assessing As-Is costs of an organization
  - Evaluating future projects from a TCO perspective
- **Conclusions**

# Introduction

- **Current economic climate is forcing companies to look for ways to cut costs.**
- **Some companies believe that reduced spending on IT is one way to cut operational costs by delaying the purchase of newer hardware and the introduction of new technologies**
- **This may be true but companies must first establish a realistic view of what their true IT costs are.....**
  - Hardware
  - Software
  - Application Development
  - Support and Help Desk
  - Power consumption
  - Data management and administration

# Introduction

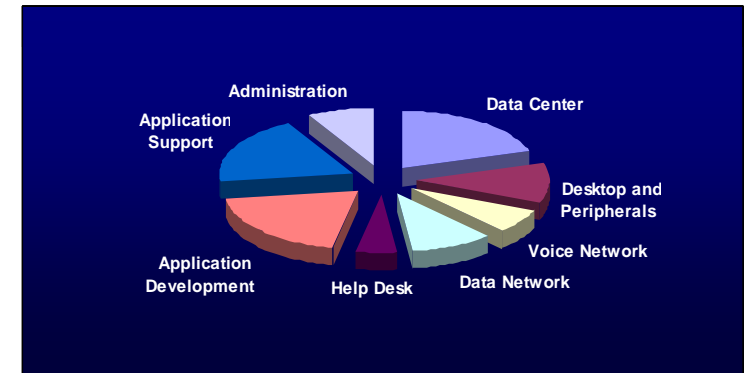
- **Traditionally IT cost concerns have focused primarily on the costs of application development**
- **While important this is not enough information to help IT organizations make the right cost decisions going forward**
- **Sometimes the most cost effective choices are not the obvious ones**
  - New hardware may have a lower total ownership cost (TOC) than the hardware it's replacing
  - Investments in new technology could provide cost saving capabilities
- **IT organizations need a comprehensive understanding of what existing and future capabilities actually cost.**

# Introduction

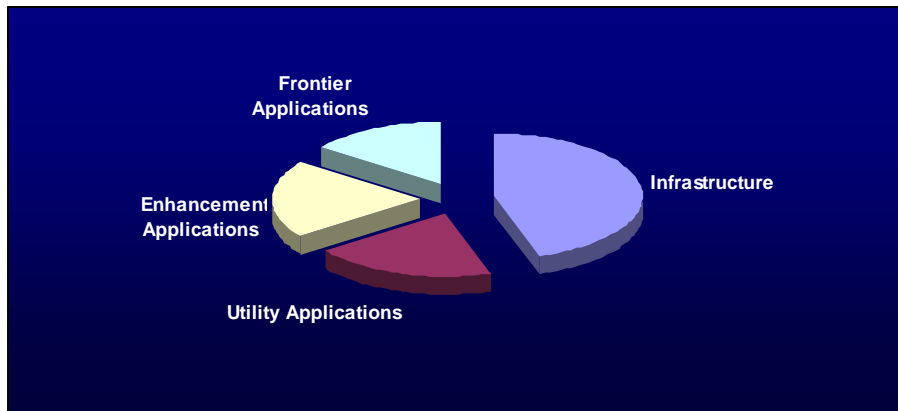
- **State of Washington project to automate the state's vehicle registration and license renewal**
  - License Application Mitigation Project (LAMP) – Initial estimate for \$16 M over 5 years
  - Actual and projected costs increased dramatically but the project continued
  - Program continue with cost overruns until it was determined that once deployed the cost to run the system will be 6 times higher than the cost to run the systems it is replacing
  - Program is scrapped after \$40 million is spent
- **Would have been nice to know this before the project was launched**

# IT Budget – What’s Really in There?

- **Application Development Projects – while expensive and often risky – only account for a small part of most organizations IT Budgets**
- **According to Gartner’s “IT Spending and Staffing Report 2008” – typical organizations spent about 20% of their budgets on new application development**
- **Traditional IT estimating focuses on application development without much thought to Total Ownership Costs (TCO) for IT**



# IT Budget – What's Really in There?



- **Infrastructure**
  - Networks
  - Desktops
  - Servers
  - Development Tools
  - Training
  - Help Desk
- **Utility Applications**
  - Sustain the business
- **Enhancement Applications**
  - Improve the business
- **Frontier Applications**
  - Revolutionize the business

# What IT Really Costs

## ■ Application Development Costs

- Care and feeding of Utility Applications (COTS Integration)
- Development and maintenance of Enhancement Applications and Frontier Applications (New Software Development/COTS Integration)

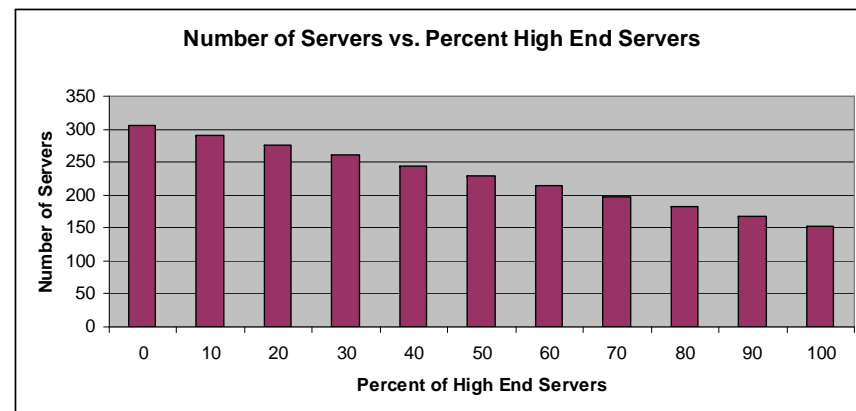
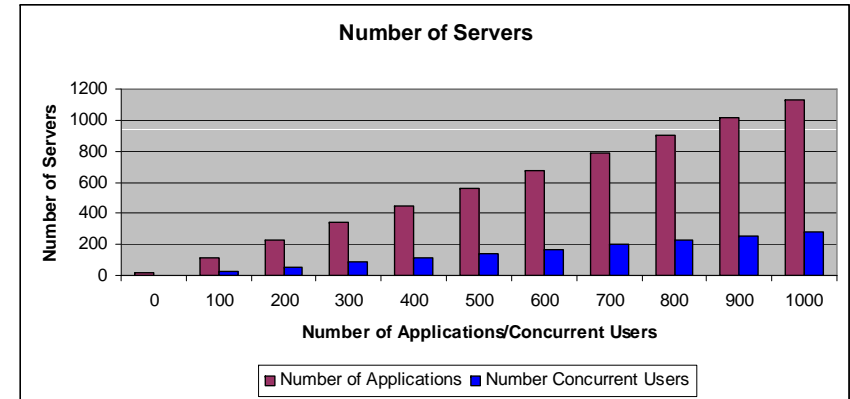
## ■ IT Infrastructure Costs

- System Deployment and Networking
  - Purchase of Servers, desktops, notebooks, software, etc.
  - Labor for IT and telecommunications personnel
- Maintenance and Support
  - Monetary costs for maintenance of hardware and software
  - Labor costs for maintenance
  - Desktop Management, security, end user down time
- Operation and Administration
  - Space and facilities costs
  - Power consumption

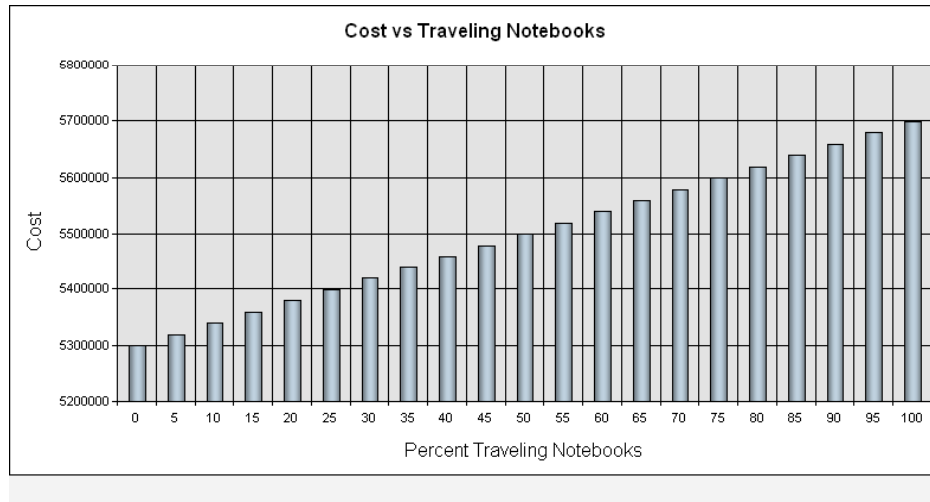


# What IT Really Costs – System Deployment and Networking

- **Major Cost Driver – Number of Servers which can be determined by looking at.....**
  - Number of Applications
  - Number of concurrent users
  - Percent and extent of power of servers (mix of high end and low end servers)
  - Level of Virtualization

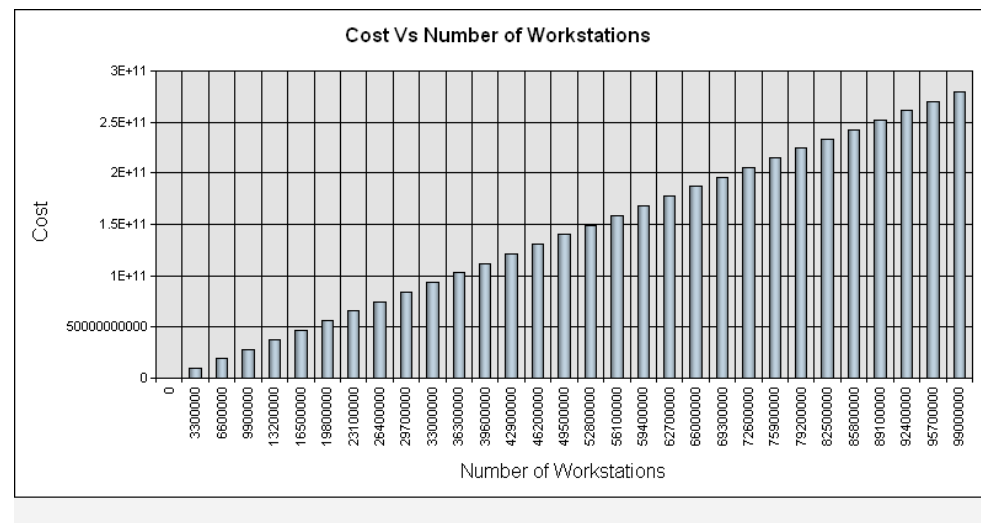


# What IT Really Costs – System Deployment and Networking



- **Additional Cost Drivers include....**

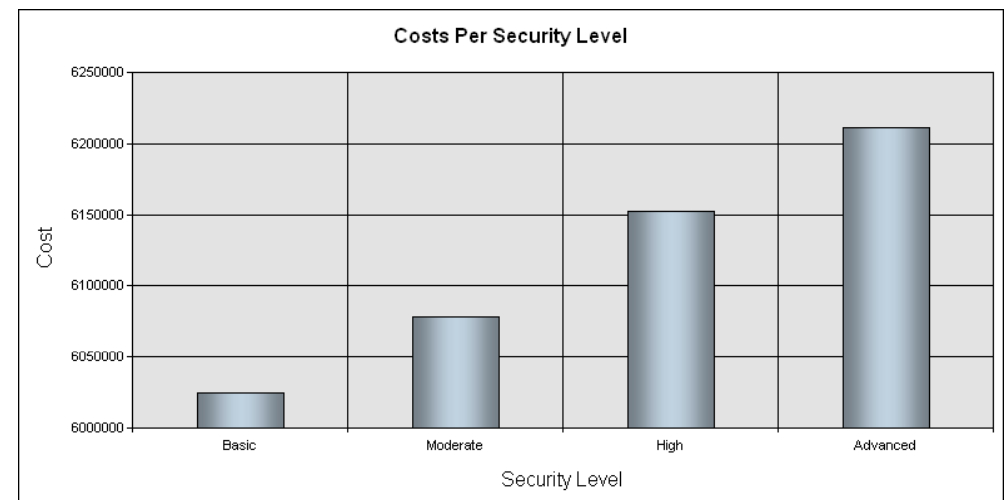
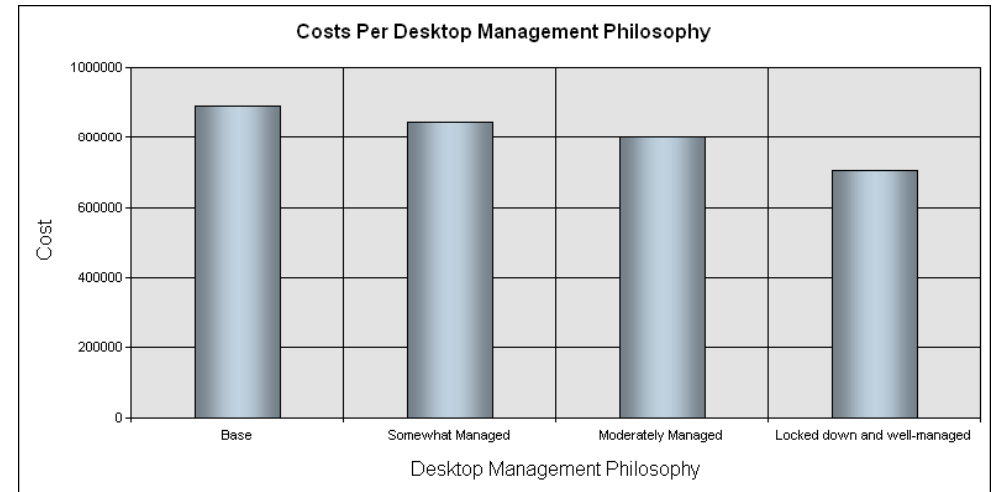
- Number of Workstations
- Number of Notebooks(Travelling and Day Extenders)



# What IT Really Costs – Maintenance and Support

## ■ Primary cost drivers

- Number of Servers
- Desktop Management Philosophy
  - End user can change anything
  - Strict usage policies
- Security

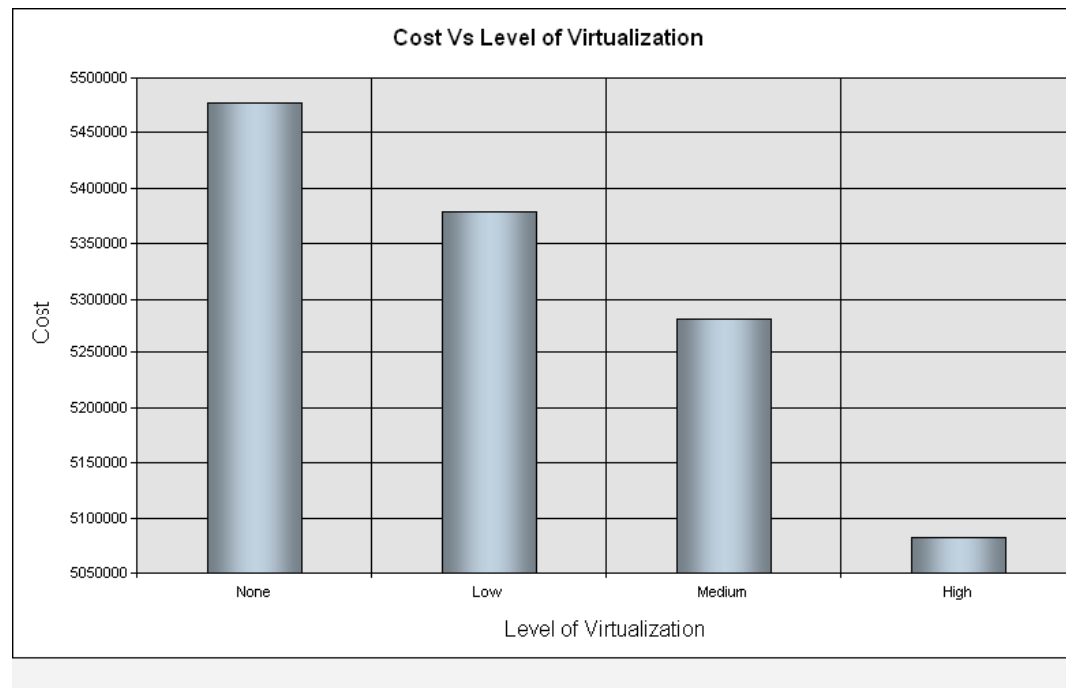


# What IT Really Costs – Maintenance and Support

- **Primary cost drivers**

- Level of Virtualization

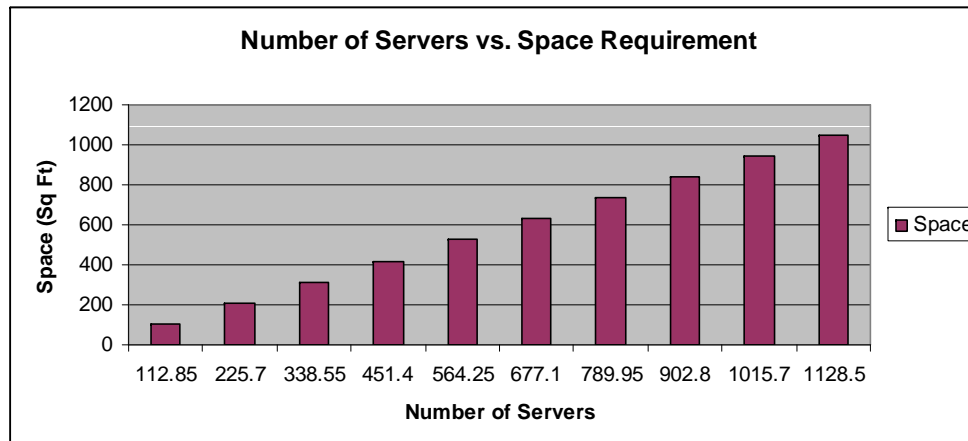
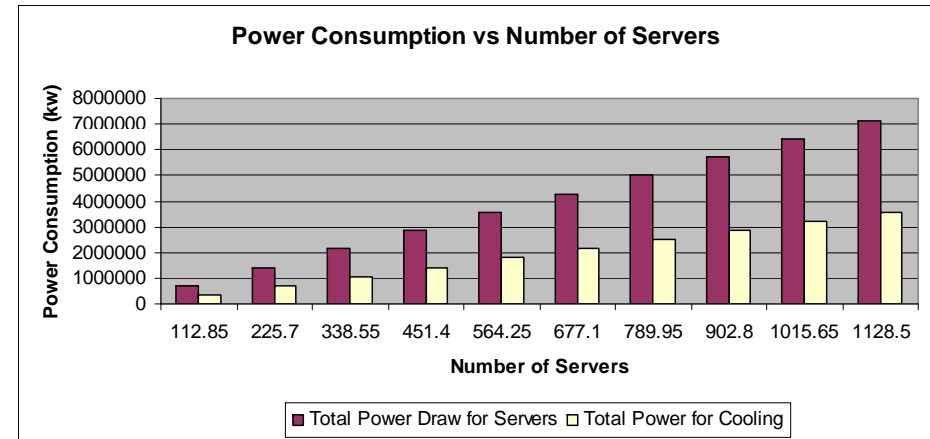
- One physical server is used to create multiple ‘virtual’ server
    - End user sees completely different servers



# What IT Really Costs – Operations and Administration

## ■ Primary Cost Drivers

- Number of Servers
- Space requirements & rental fees
- Geographical locality
- Level of Virtualization



# Supporting Good Decisions with Total Cost of Ownership – an example

## ■ The Challenge.....

- The Government of Fedonia's Armed services plans to replace 50% of their classroom and onsite training with web based distributed training classes
- The IT infrastructure is currently operating at full capacity
- Investments are required to
  - Develop web based training
  - Bolster the overtaxed infrastructure
- Fredonia plans to outsource this effort and issues a request for proposal

# Supporting Good Decisions with Total Cost of Ownership – an example

- **The following three proposals are received**
  - Vendor 1 proposes extending the existing server capability through a high degree of virtualization at a cost of \$2,000,000
  - Vendor 2 proposes purchasing and deploying additional high end servers at a cost of \$3,800,000
  - Vendor 3 proposes extending existing server capability through a medium degree of virtualization combined with custom developed optimization software (developed specifically to support web based training) at a cost of \$9,100,000

## Supporting Good Decisions with Total Cost of Ownership – an example

- **Fredonia, mystified at the wide variance of costs gives each vendor an opportunity to sell their solution.**
- **Meeting with Vendor 1 clearly indicates they did not understand the problem or the limits of Fredonia's existing technology.**
- **Vendors 2 and 3 both appear to have credible solutions, but the cost disparity remains**
- **Vendor 3 makes the case that their solution will save the company significant money in later years due to savings in maintenance and operation costs.**



# As-is costs for IT and Training for next 10 years

- **IT**

- Support about 4800 end users
- At any time about 900 concurrent users
- No virtualization
- About 50% of servers are high end

- **Training**

- Outsourced at \$500 per student
- Average class size is 15
- Average duration of instruction is 16 hours
- Approximately 250 classes per year

# As-is costs for IT and Training for next 10 years

PRICE TruePlanning - [As Is Configuration]

Product Breakdown Structure

- 1 As is configuration
  - 2 As-Is Configuration
    - 3 Fredonia's On-Going Information Technology Costs
      - 4 **IT Enterprise**
        - 5 Utility Applications
        - 6 Business Process Applications
        - 7 Classroom and on-site training

Input Sheet: IT Enterprise

Cost Objects | Input Sheet | Results | Chart

IT Enterprise Detailed Estimate

Cost: \$13,874,887    36.09%    Labor Requirement: 92,321.88 Hours  
 Project Cost: \$38,446,247    Project Labor Requirement: 256,351.52 Hours

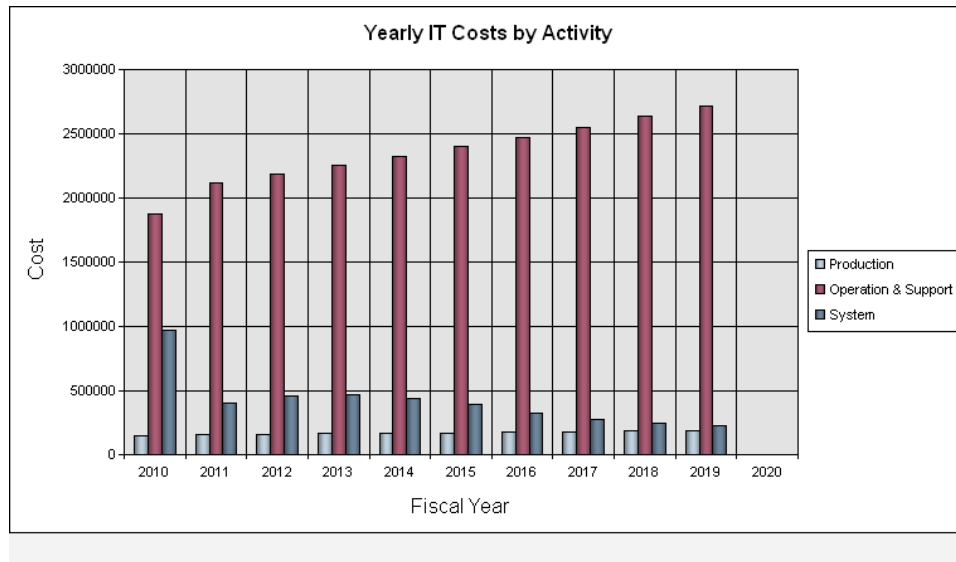
Worksheet Set: <Inherited>

	Value	Units	Spread	Notes
1 Start Date	1/1/2010			
2 Deployment Period	10.00	years		
3 Number of Concurrent Users	900			
4 Number of Applications	250			
5 Desktop Management	Locked down and well-managed			
6 Security	Advanced			
7 Level of Virtualization	None			
8 Percent High End Servers	50.00%	%		
9 Percent Blade Servers	60.00%	%		
10 Number of Workstations	4,800			
11 Percent Day Extender Notebooks	30.00%	%		
12 Percent Traveling Notebooks	15.00%	%		
13 -				
14 Space Rental Fees	30.00	\$...		

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# As-is costs for IT and Training for next 10 years

Fredonia estimates the cost to maintain the status quo to be \$38.5 million



# Option 2

- **IT**

- Support about 4800 end users
- Concurrent users could increase by as much as 400
- No virtualization
- Increase percent of high end servers to 80%

- **Training**

- Outsourced at \$500 per student
- Average class size is 15
- Average duration of instruction is 16 hours
- Approximately 135 classes per year
- Develop and deliver web based training
- Expect approximately 2000 trainees
- Assume classroom training is phased out over the next 4 years

# Option 2

PRICE TruePlanning - [Option 2]

File Edit View Tools Window Help

Product Breakdown Structure

Simple Detailed

- Option 2
  - Option 2 - Increased High End Servers
    - Fredonia's On-Going Information Technology Costs
      - IT Enterprise**
        - Utility Applications
        - Business Process Applications
        - Classroom and on-site training
        - Web Based Training

Input Sheet: IT Enterprise

Cost Objects Input Sheet Results Chart

IT Enterprise Detailed Estimate

Cost: \$23,055,691 60.85% Labor Requirement: 186,420.33 Hours  
 Project Cost: \$37,887,232 Project Labor Requirement: 288,110.43 Hours

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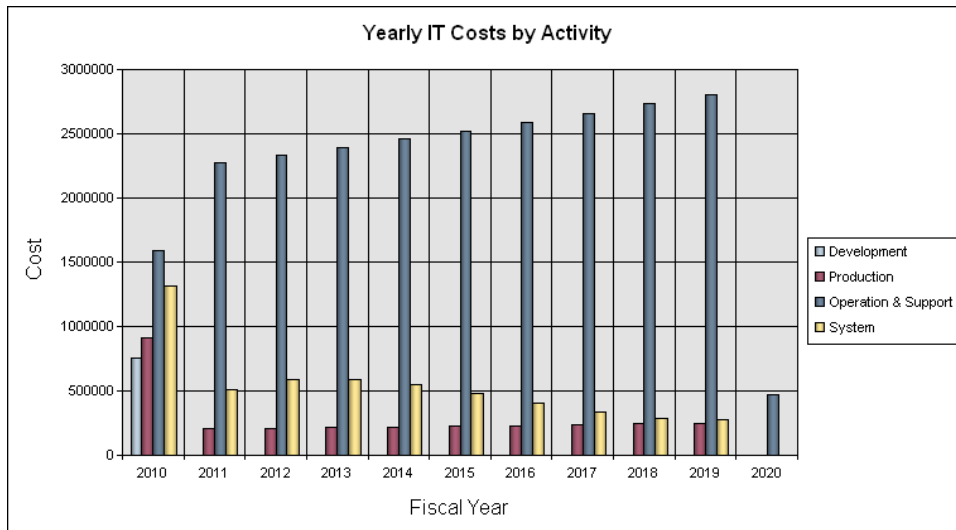
	Value	Units	Spread	Notes
1 Start Date	1/1/2010			
2 Deployment Period	10.00	years		
3 Number of Concurrent Users	1,300			
4 Number of Applications	250			
5 Desktop Management	Locked down and well-managed			
6 Security	Advanced			
7 Level of Virtualization	None			
8 Percent High End Servers	80.00%	%		
9 Percent Blade Servers	60.00%	%		
10 Number of Workstations	4,800			
11 Percent Day Extender Notebooks	30.00%	%		
12 Percent Traveling Notebooks	15.00%	%		
13 -				
14 Space Rental Fees	30.00	\$..		

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# Option 2

Initial Investment of \$3.8 million with Total cost for the 10 years being \$37.9 million.



# Option 3

## ■ IT

- Support about 4800 end users
- Concurrent users could increase by as much as 400
- Medium level of virtualization
- Percentage of high end servers remains at 50%
- Custom software development of 50,000 SLOC

## ■ Training

- Outsourced at \$500 per student
- Average class size is 15
- Average duration of instruction is 16 hours
- Approximately 135 classes per year
- Develop and deliver web based training
- Expect approximately 2000 trainees
- Assume classroom training is phased out over the next 4 years

# Option 3

PRICE TruePlanning - [Option 3]

File Edit View Tools Window Help

Product Breakdown Structure

Simple Detailed

- 1 Option 3
- 2 Option 3 - Medium Virtualization with custom optimization software
- 3 Fredonia's On-Going Information Technology Costs
- 4 IT Enterprise
- 5 Utility Applications
- 6 Business Process Applications
- 7 Software Component
- 8 Classroom and on-site training
- 9 Web Based Training

Input Sheet: IT Enterprise

Cost Objects Input Sheet Results Chart

IT Enterprise Detailed Estimate

Cost: \$15,190,495 42.84% Labor Requirement: 95,811.58 Hours

Project Cost: \$35,462,426 Project Labor Requirement: 241,277.66 Hours

Worksheet Set: <Inherited>

	Value	Units	Spread	Notes
1 Start Date	1/1/2010			
2 Deployment Period	10.00	years		
3 Number of Concurrent Users	1,300			
4 Number of Applications	250			
5 Desktop Management	Locked down and well-managed			
6 Security	Advanced			
7 Level of Virtualization	Medium			
8 Percent High End Servers	50.00%	%		
9 Percent Blade Servers	60.00%	%		
10 Number of Workstations	4,800			
11 Percent Day Extender Notebooks	30.00%	%		
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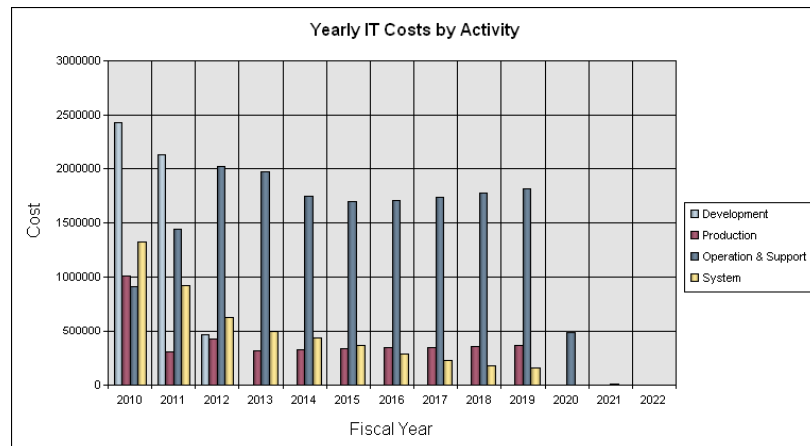
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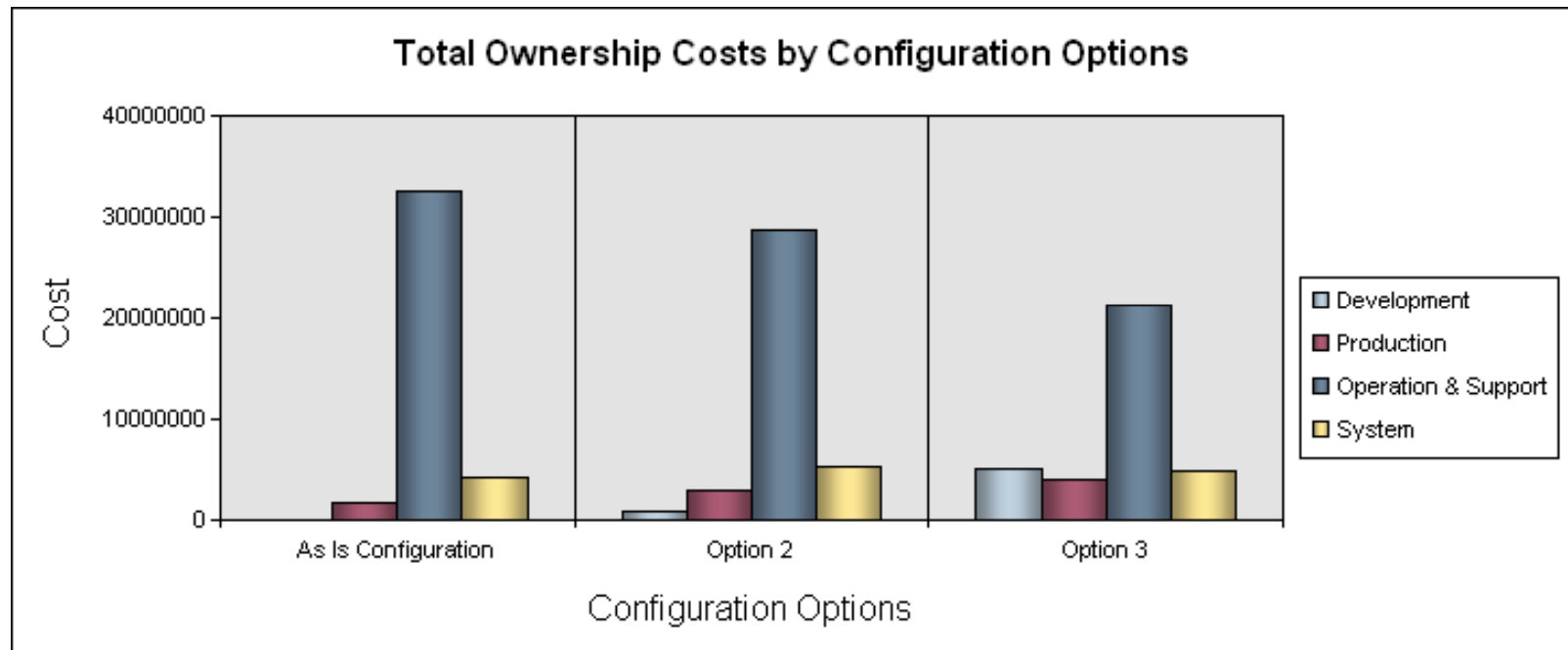
# Option 3

Initial Investment of \$9.1 million with Total cost for the 10 years being \$35.5 million.



By using a software solution augmented by virtualization Vendor 3 has proposed a solution that will reduce overall operational costs in the 10 year time frame

# Big Picture Presents Option 3 as Best Choice



# Added Benefit of Option 3

- Further analysis leads Fredonia to the conclusion that Option 3 is not only the low cost solution but also the most environmentally friendly solution as it reduces the number of servers necessary to achieve desired computing power.

Configuration	Power Consumption (kw)
As is	10,863,085
Option 2	12,552,898
Option 3	9,414,674

# Conclusions

- **Traditional IT estimates have focused primarily on application development efforts**
  - This is an excellent practice and should continue but by itself it will not provide comprehensive analysis
- **65-75% of the typical IT budget is spent on things other than application development.**
- **Cost effectiveness is becoming increasingly important for companies in the current economic climate**
- **In order to make informed decisions about the right application development and infrastructure decisions – businesses must make a holistic assessment of all of the cost implications of such decisions**
  - Costs of new projects or equipment
  - Cost impacts on infrastructure and operations of new projects or equipment
  - Factors that drive these costs