# Show Me the Money!

**Taking the Mystery Out of Quantifying ROIT**

John Dodge Hayes
Avnet Enterprise Solutions

HP WORLD 2003
Solutions and Technology Conference & Expo

# Avnet Enterprise Solutions:
# Technical Breadth and Depth

- $333 million IT infrastructure architect

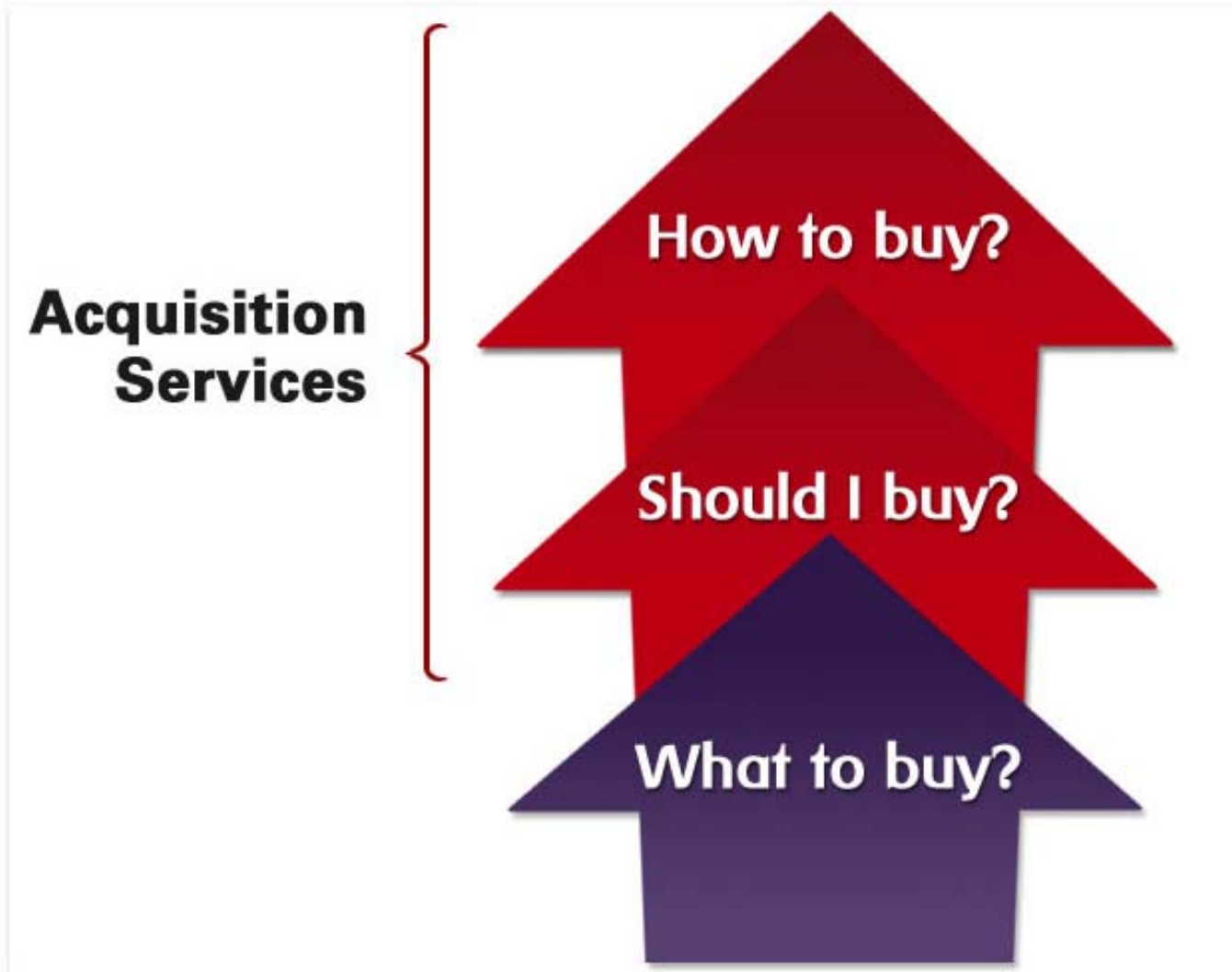- 16+ years experience delivering complex data center and network infrastructure solutions.



- hp National Enterprise Storage Partner of the Year.

- Ranked 85th on VARBusiness 500

- Proven Methodology
  - Account Management
  - Professional Services
  - Project Management
  - Methodology
  - Acquisition Services

# Considerations for Acquiring Technology
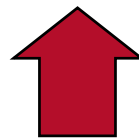
# Should I Buy?
# ROI Assessments

- **Business Value Assessment (ITCentrix)**
  - Modeled ROI
  - Historical Industry Data
  - Assumptions

- **IT Financial Assessment Methodology (ITFAM)**
  - Based on Intermediate Financial Management 5th Edition (Brigham-Gapenski)
  - Proven financial framework extended to include the "Dynamics of IT Assets"
  - Methodology for gathering your actual financial data

# ITFAM Step 1:
# Determine Current Expenses

|  | YR1 |
|---|---|
| Hardware Maintenance | $$$ |
| Software Maintenance | $$$ |
| Depreciation | $$$ |
| Lease Payments | $$$ |
| Support | $$$ |
| Facilities Costs | $$$ |
| Status Quo | $$$ |

**Current Costs**

# ITFAM Step 2:
# Determine TCO

| | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|
| Hardware Maintenance | $$$ | $$$ | $$$ | $$$ |
| Software Maintenance | $$$ | $$$ | $$$ | $$$ |
| Depreciation | $$$ | $$$ | $$$ | $$$ |
| Lease Payments | $$$ | $$$ | $$$ | $$$ |
| Support | $$$ | $$$ | $$$ | $$$ |
| Facilities Costs | $$$ | $$$ | $$$ | $$$ |
| Status Quo | $$$ | $$$ | $$$ | $$$ |

**Total Cost of Ownership**

# ITFAM Step 3: Compare Alternatives to get ROI

| | Invest | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|---|
| Hardware Maintenance | | $$$ | $$$ | $$$ | $$$ |
| Software Maintenance | | $$$ | $$$ | $$$ | $$$ |
| Depreciation | | $$$ | $$$ | $$$ | $$$ |
| Lease Payments | | $$$ | $$$ | $$$ | $$$ |
| Support | | $$$ | $$$ | $$$ | $$$ |
| Facilities Costs | | $$$ | $$$ | $$$ | $$$ |
| | | | | | |
| Status Quo | | $$$ | $$$ | $$$ | $$$ |
| Less: Proposed Solution | $$$ | $$$ | $$$ | $$$ | $$$ |
| Net Cash Flow | ($$$) | $$$ | $$$ | $$$ | N/A |

ROI = Internal Rate of Return (IRR) of Net Cash Flows

# Determine Current Expenses

|  | YR1 |
|---|---|
| Server H/W Maint. | $269,000 |
| Server S/W Maint. | $30,600 |
| Depreciation | $0 |
| Lease Payments | $0 |
| Support | N/A |
| Facilities Costs | $43,836 |
| **Status Quo** | **$343,436** |

**Current Annual Costs**

# Example - Step 2a:
# Determine TCO

|  |  | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|---|
| **Depreciation** |  | $0 | $0 | $0 | $0 |
| **Cash Costs** |  | $343,436 | $343,436 | $343,436 | $1,030,308 |
| **Subtotal:** |  | $343,436 | $343,436 | $343,436 | $1,030,308 |
| **Capital Improvements:** |  | $0 | $0 | $0 | $0 |
| **Total Existing** |  | **$343,436** | **$343,436** | **$343,436** | **$1,030,308** |

TCO

# Example - Step 2b:
# Expenses for Alternative

|  | YR1 |
|---|---|
| Server H/W Maint. | $0 |
| Server S/W Maint. | $0 |
| Depreciation | $118,923 |
| Trade-in Value | ($200,000) |
| Support | N/A |
| Facilities Costs | $14,031 |
| Status Quo | ($67,046) |

**Current Annual Costs**

# Example – Step 2b:
# Alternative TCO

|  |  | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|---|
| **Depreciation** |  | $118,923 | $118,923 | $118,923 | $356,769 |
| **Cash Costs** |  | ($185,969) | $157,696 | $157,696 | $129,423 |
| **Subtotal:** |  | ($67,046) | $276,619 | $276,619 | $486,192 |
|  |  |  |  |  |  |
| **Total** |  | **($67,046)** | **$276,619** | **$276,619** | **$486,192** |

# TCO

## IT Budgetary View

| | Invest | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|---|
| **Current Environment** | | | | | |
| **(4) HP V2500 Servers** | | | | | |
| Depreciation | | $0 | $0 | $0 | $0 |
| Maintenance, Power, Floorspace | | $343,436 | $343,436 | $343,436 | $1,030,308 |
| **Subtotal:** | | $343,436 | $343,436 | $343,436 | $1,030,308 |
| **Less: Proposed Solution** | | | | | |
| **(2) HP rp8400 Servers** | | | | | |
| Investment | $594,613 | | | | |
| Trade-in | | ($200,000) | $0 | $0 | ($200,000) |
| Depreciation | | $118,923 | $118,923 | $118,923 | $356,769 |
| Maintenance, Power, Floorspace | | $14,031 | $157,696 | $157,696 | $329,423 |
| **Subtotal:** | | ($67,046) | $276,619 | $276,619 | $486,192 |
| **Net IT Benefit** | | $410,482 | $66,817 | $66,817 | $544,116 |

**Frees up $544,116 in IT Budget over 3 years**

# Example: Server Consolidation of (4) HP V2500 to (2) HP rp8400

## ROI (Cash)

| | Invest | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|---|
| **Current Environment** **(4) HP V2500 Servers** | | | | | |
| Depreciation | | $0 | $0 | $0 | $0 |
| Maintenance, Power, Floorspace | | $343,436 | $343,436 | $343,436 | $1,030,308 |
| **Subtotal:** | | $343,436 | $343,436 | $343,436 | $1,030,308 |
| **Less: Proposed Solution** **(2) HP rp8400 Servers** | | | | | |
| Cash Investment | $594,613 | | | | |
| Cash from Trade-in | | ($200,000) | $0 | $0 | ($200,000) |
| Tax Savings from Depreciation | | ($29,731) | ($29,731) | ($29,731) | ($89,193) |
| Maintenance, Power, Floorspace | | $14,031 | $157,696 | $157,696 | $329,423 |
| **Subtotal:** | | ($215,700) | $127,965 | $127,965 | $40,230 |
| **Net Cash Flow** | **($594,613)** | **$559,136** | **$215,471** | **$215,471** | **See NPV** |

NPV = $205,138
Payback = 14 months

ROI = 39%
Compare to 12% "Hurdle Rate"

# Example: Server Consolidation of (4) HP V2500 to (2) HP rp8400

## ROI (Capital Lease)

|  | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|
| **Current Environment** |  |  |  |  |
| **(4) HP V2500 Servers** |  |  |  |  |
| Depreciation | $0 | $0 | $0 | $0 |
| Maintenance, Power, Floorspace | $343,436 | $343,436 | $343,436 | $1,030,308 |
| **Subtotal:** | $343,436 | $343,436 | $343,436 | $1,030,308 |
|  |  |  |  |  |
| **Less: Proposed Solution** |  |  |  |  |
| **(2) HP rp8400 Servers** |  |  |  |  |
| Cash from Trade-in | ($200,000) |  |  |  |
| Tax Savings from Depreciation | ($29,731) | ($29,731) | ($29,731) | ($89,193) |
| Lease Payment (9% IRR) | $225,953 | $225,953 | $225,953 | $677,859 |
| Maintenance, Power, Floorspace | $14,031 | $157,696 | $157,696 | $329,423 |
| **Subtotal:** | $10,253 | $353,918 | $353,918 | $718,089 |
|  |  |  |  |  |
| **Net Cash Flow** | **$333,183** | **($10,482)** | **($10,482)** | **See NPV** |

**Payback = 0 months**

**NPV = $251,488**

# Consolidation Impact Report



**Current Environment**



**Proposed Environment**

**ITFAM – ROI Analysis**

# Case Study:
# Storage Consolidation

Ethernet

GS 160
SCSI Cluster

7* ESA 12000
SCSI Storage
4TB per Server
8 TB Total Storage
assigned to cluster

Two Unix Servers
8TB Total Storage
32% Storage C.A.G.R.

ESA12000 . . .

ESA12000 . . .
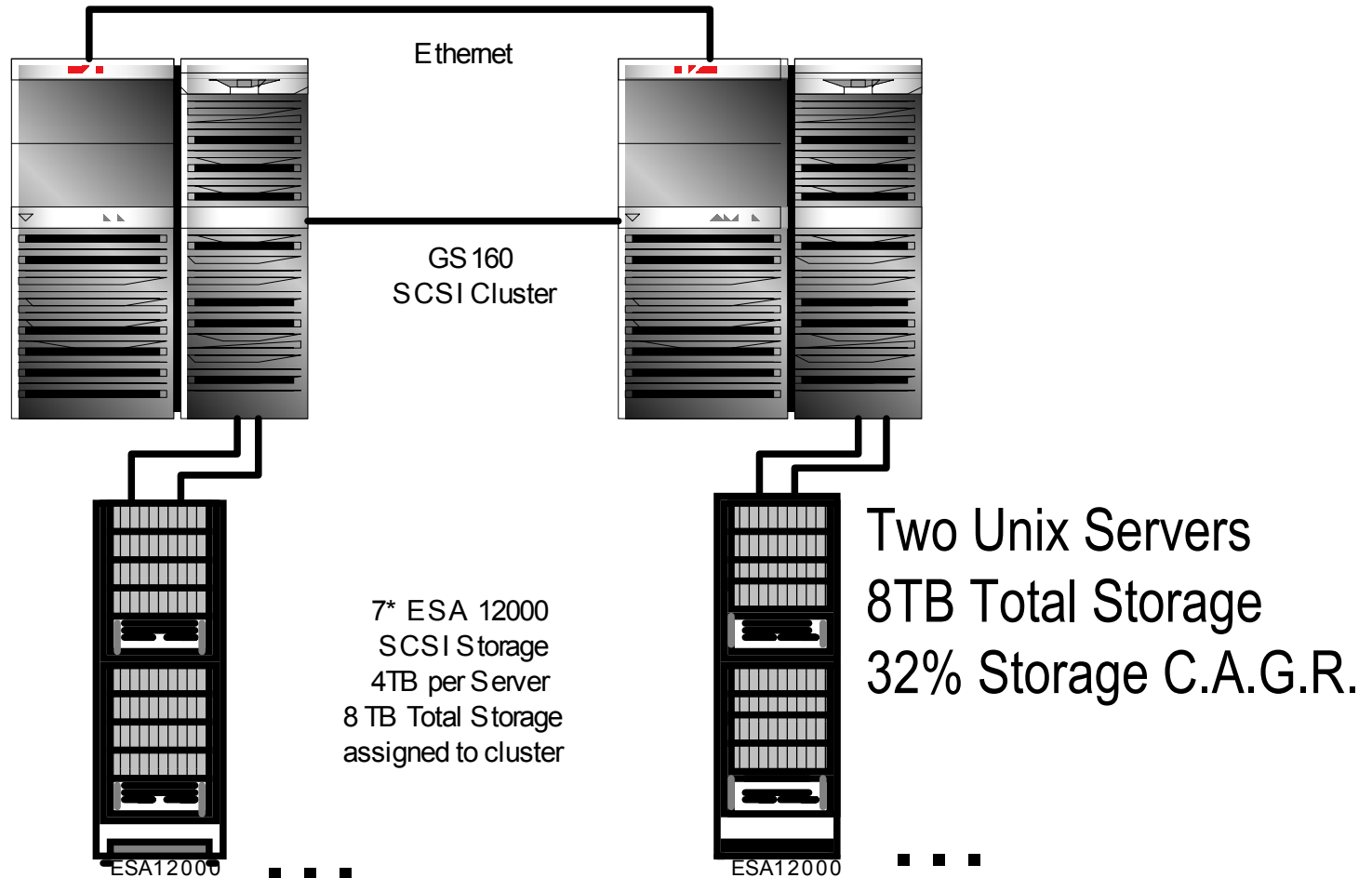
# Case Study - Step 1: Determine Current Expenses

|  | YR1 |
|---|---|
| GS140 H/W & S/W Maint. | $147,600 |
| Storage H/W Maint. | $93,792 |
| Depreciation | $0 |
| Lease Payments | $0 |
| Support | $150,000 |
| Facilities Costs | $42,736 |
| **Status Quo** | **$434,128** |

**Current Year Costs**

# Storage/Staff Growth without Virtualization

## Five-Year Capacity Projections of Base Case for Customer

Platform: Unix    Workload Type: Industry Unix Mix
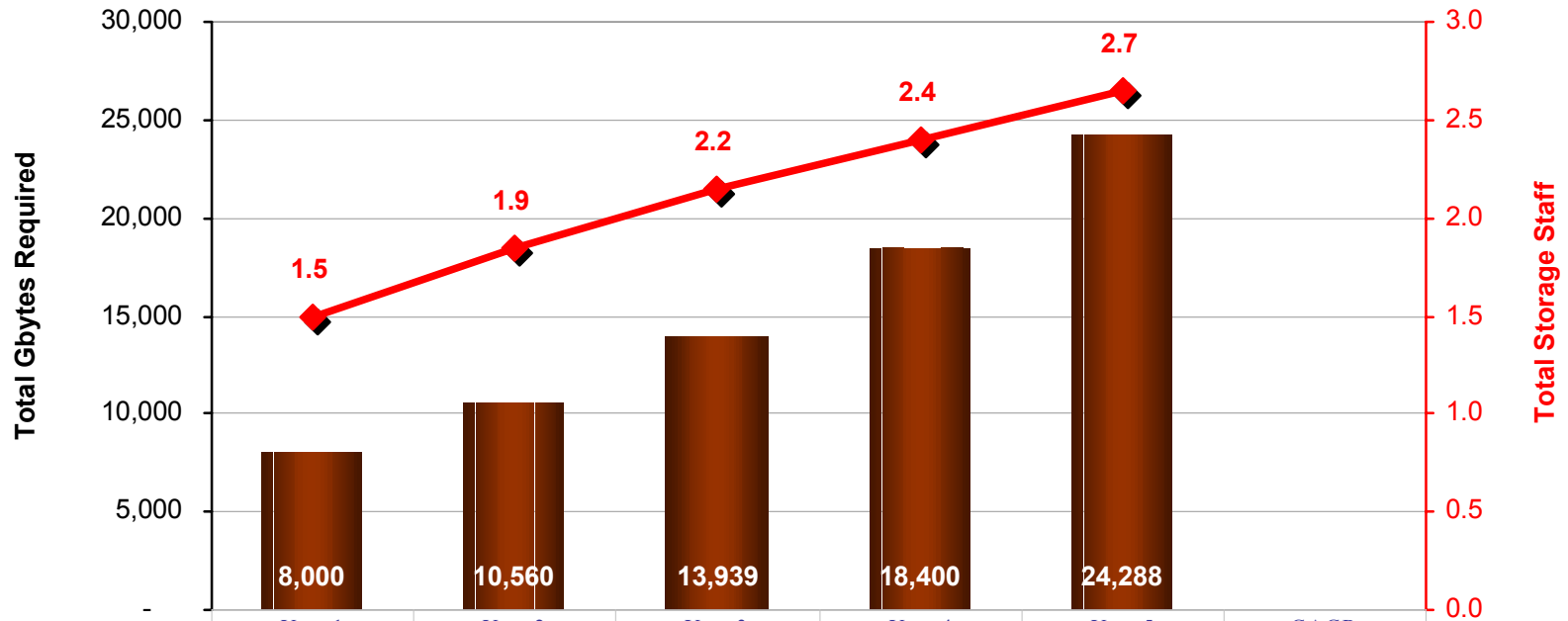


| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | CAGR |
|---|---|---|---|---|---|---|
| GB Managed/Person | 5,333 | 5,708 | 6,483 | 7,667 | 9,165 | 14.5% |
| Total Gbytes Required | 8,000 | 10,560 | 13,939 | 18,400 | 24,288 | 32.0% |
| Total Storage Staff | 1.5 | 1.9 | 2.2 | 2.4 | 2.7 | 15.3% |

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May 02, 2003

# Case Study - Step 2a:
# Determine TCO

| | | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|---|
| Depreciation | | $0 | $0 | $0 | $0 |
| Administration | | $150,000 | $190,000 | $220,000 | $560,000 |
| Cash Costs | | $284,128 | $284,128 | $284,128 | $852,384 |
| Subtotal: | | $434,128 | $474,128 | $504,128 | $1,412,384 |
| Growth: | | $0 | $10,143 | $19,373 | $29,516 |
| Total Existing | | $434,128 | $484,271 | $523,501 | $1,441,900 |

## TCO

# Staff Efficiencies of Virtualization



**Staff Efficiencies of StorageWorks Solution for Customer**

Platform: Unix    Workload Type: Industry Unix Mix          Projected from Year 1

GB Managed/Person

| Category | GB Managed/Person | Total Storage Staff |
|---|---|---|
| Collocated (Base Case) | 5,333 | 1.5 |
| Business Efficiency Storage (Managed NAS/SAN) | 12,031 | 0.7 |
| Business Flexibility Storage (Virtualization) | 17,485 | 0.5 |
| Business Continuity Storage (Multi-level Protection) | 24,531 | 0.3 |
| Global Business Storage (Life Cycle Data Mgt) | 34,021 | 0.2 |

Total Storage Staff - Year 1

■ GB Managed/Person Total SAN    ▨ GB Managed/Person NAS    ■— Total Storage Staff

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May 02, 2003

# Utilization Metrics of Virtualization



Utilization Metrics of StorageWorks Solution for Customer

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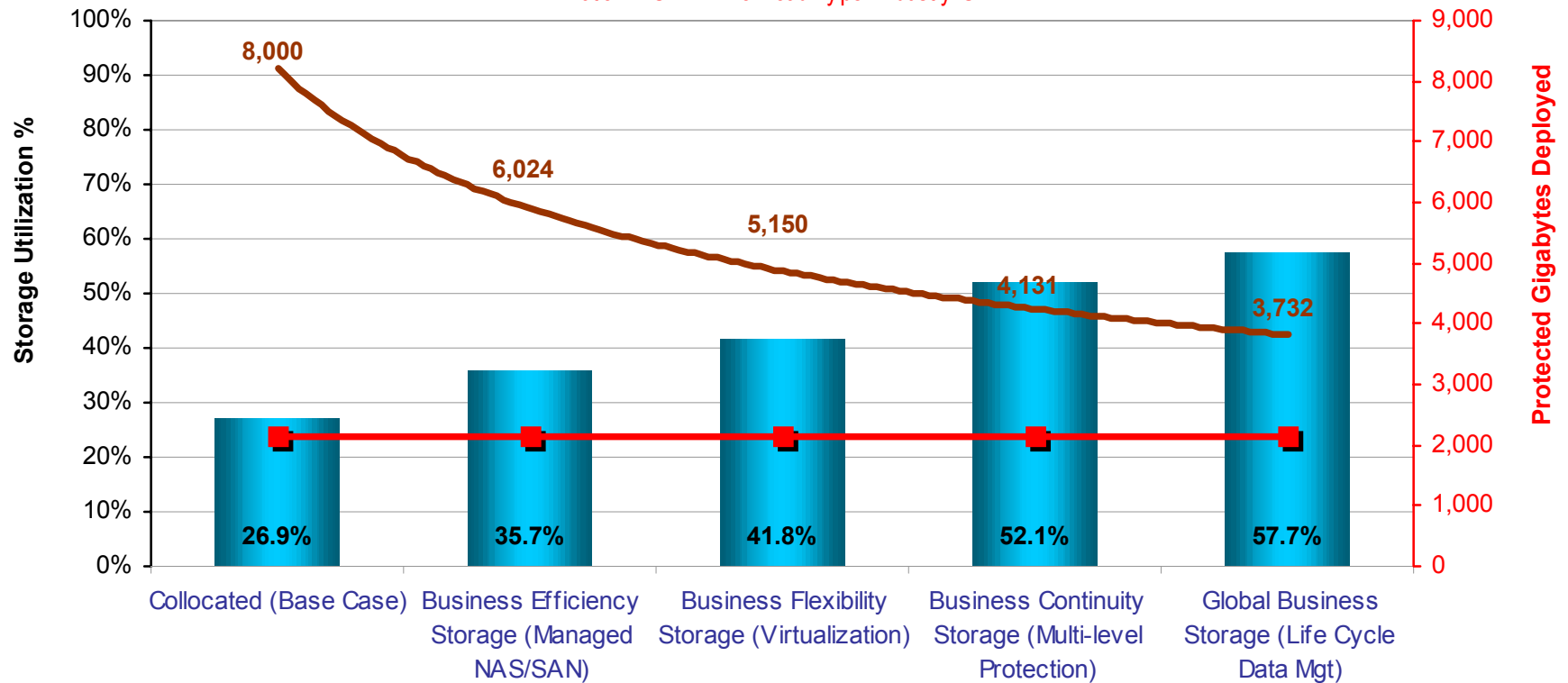
# New Consolidated Environment

Ethernet

Fiber Channel switches

3*ES45
Fiber Channel SAN
1 * EVA5000
2C12D
24TB capacity (144GB drives)

3 UNIX Servers

EVA5000
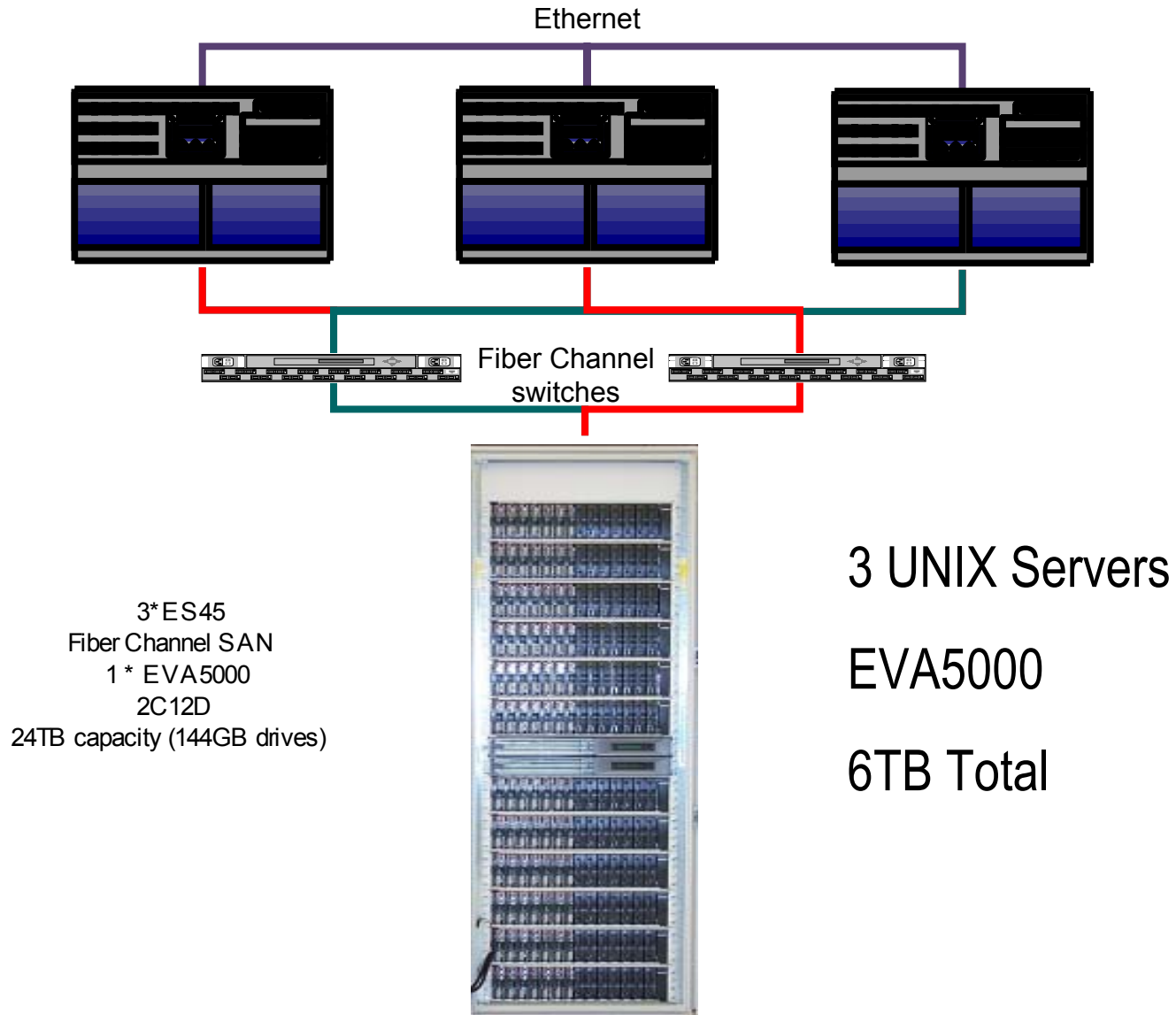
6TB Total

# Case Study - Step 2b:
## TCO of Proposed Solution

|  |  | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|---|
| Depreciation |  | $137,946 | $137,946 | $137,946 | $413,838 |
| Administration |  | $50,000 | $57,650 | $66,470 | $174,120 |
| Cash Costs |  | ($195,558) | $79,258 | $79,258 | ($37,042) |
| Subtotal: |  | ($7,612) | $274,854 | $283,674 | $550,916 |
| Growth: |  | $0 | $8,114 | $14,707 | $22,821 |
| **Total** |  | **($7,612)** | **$282,968** | **$298,381** | **$573,737** |

## TCO

## IT Budgetary View

| | Invest | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|---|
| **Current Environment** **(2) GS140/8TB ESA 12K Storage** | | | | | |
| Depreciation | | $0 | $0 | $0 | $0 |
| Cash Expenses | | $434,128 | $474,128 | $504,128 | $1,412,384 |
| Growth | | $0 | $10,143 | $19,373 | $29,516 |
| **Subtotal:** | | $434,128 | $484,271 | $523,501 | $1,441,900 |
| **Less: Proposed Solution** **(3) ES45/6TB EVA5000 SAN** | | | | | |
| Investment | $689,731 | | | | |
| Trade-in | | ($250,000) | $0 | $0 | ($250,000) |
| Depreciation | | $137,946 | $137,946 | $137,946 | $413,838 |
| Cash Expenses | | $104,442 | $136,908 | $145,728 | $387,078 |
| Growth | | $0 | $8,114 | $14,707 | $22,821 |
| **Subtotal:** | | ($7,612) | $282,968 | $298,381 | $573,737 |
| | | | | | |
| **Net IT Benefit** | | **$441,740** | **$201,303** | **$225,120** | **$868,163** |

## Frees up $868,163
## in IT Budget over 3 years

## ROI (Cash)

| | Invest | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|---|
| **Current Environment** **(2) GS140/8TB ESA 12K Storage** | | | | | |
| Depreciation | | $0 | $0 | $0 | $0 |
| Cash Expenses | | $434,128 | $474,128 | $504,128 | $1,412,384 |
| Growth Investments | | $50,715 | $46,151 | $0 | $96,866 |
| Subtotal: | | $484,843 | $520,279 | $504,128 | $1,509,250 |
| **Less: Proposed Solution** **(3) ES45/6TB EVA5000 SAN** | | | | | |
| Cash Investment | $689,731 | | | | |
| Cash from Trade-in | | ($250,000) | $0 | $0 | ($250,000) |
| Tax Savings from Depreciation | | ($34,487) | ($33,979) | ($33,320) | ($101,786) |
| Cash Expenses | | $104,442 | $136,908 | $145,728 | $387,078 |
| Growth Investments | | $40,572 | $32,965 | $0 | $73,537 |
| Subtotal: | | ($139,473) | $135,894 | $112,408 | $108,829 |
| | | | | | |
| **Net Cash Flow** | **($689,731)** | **$624,316** | **$384,385** | **$391,720** | **See NPV** |

NPV = $ 404,412

Payback = 17 months

ROI = 52%

# Compare the "How to Buy"

## ROI (Capital Lease)

| | YR1 | YR2 | YR3 | TOTAL |
|---|---|---|---|---|
| **Current Environment** | | | | |
| **(2) GS140/8TB ESA 12K Storage** | | | | |
| Depreciation | $0 | $0 | $0 | $0 |
| Cash Expenses | $434,128 | $474,128 | $504,128 | $1,412,384 |
| Growth Investments | $50,715 | $46,151 | $0 | $96,866 |
| **Subtotal:** | $484,843 | $520,279 | $504,128 | $1,509,250 |
| | | | | |
| **Less: Proposed Solution** | | | | |
| **(3) ES45/6TB EVA5000 SAN** | | | | |
| Cash from Trade-in | ($250,000) | $0 | $0 | ($250,000) |
| Tax Savings from Depreciation | ($34,487) | ($33,979) | ($33,320) | ($101,786) |
| Lease Payment (9% IRR) | $262,098 | $262,098 | $262,098 | $786,294 |
| Cash Expenses | $104,442 | $136,908 | $145,728 | $387,078 |
| Growth Investments | $40,572 | $32,965 | $0 | $73,537 |
| **Subtotal:** | $122,625 | $397,992 | $374,506 | $895,123 |
| | | | | |
| **Net Cash Flow** | **$362,218** | **$122,287** | **$129,622** | **See NPV** |

**Payback = 0 months**

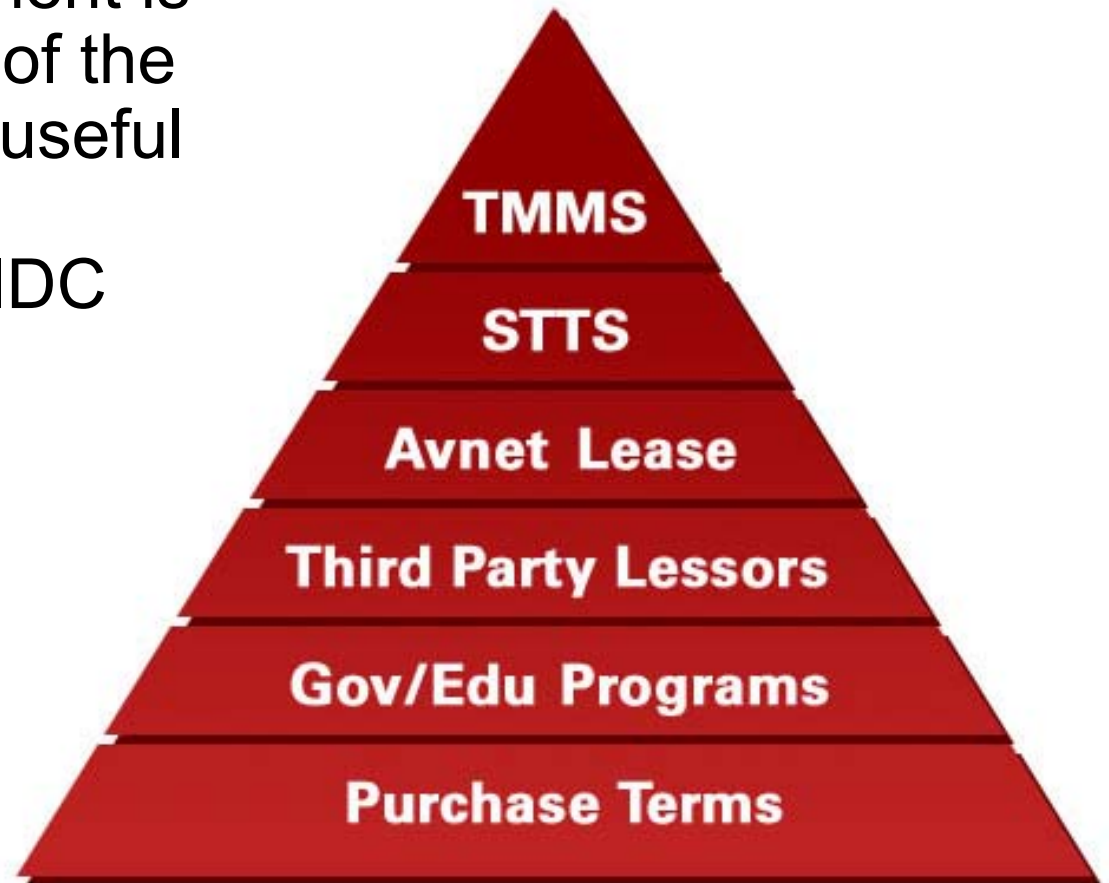**NPV = $458,177**

"Key to efficient technology financial management is to match the term of the financing with the useful life of the asset"
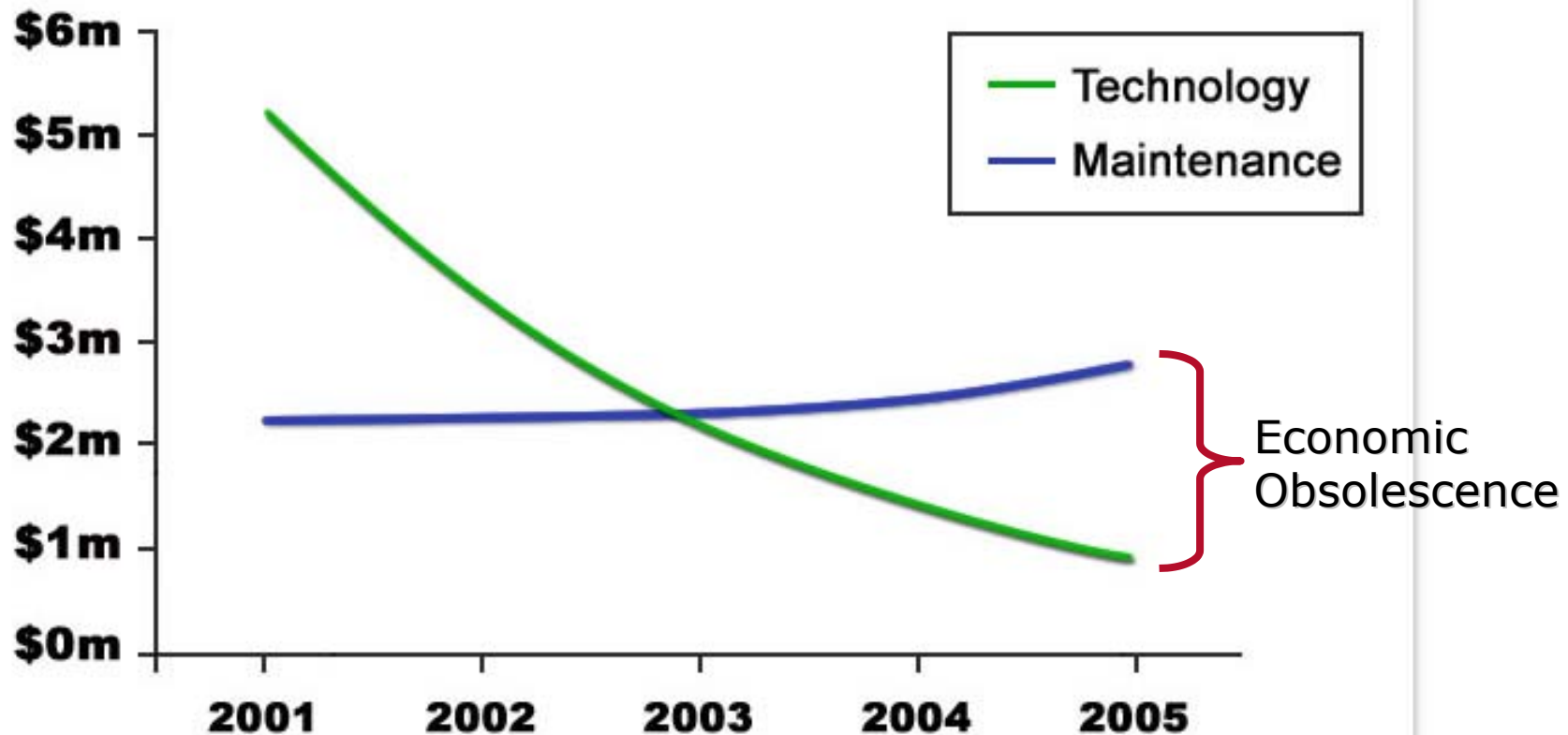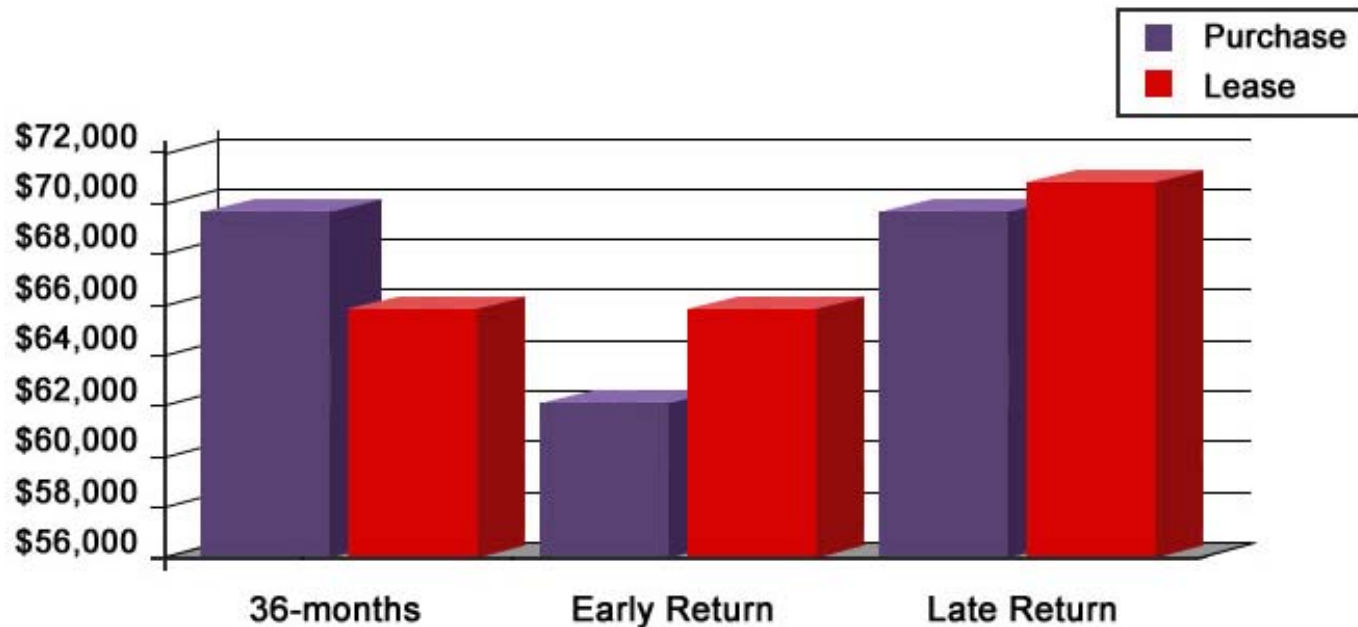
- IDC

# Why are lifecycles short?

# Traditional Finance:
# Highly sensitive to timings

## Economic Obsolescence
### Driven by Maintenance Costs

**True\* Cost of Purchase -vs- Lease of a $100,000 asset assuming equipment is:**

**1) returned exactly on time**

**2) returned a year early**

**3) returned three months late**



Legend: Purchase (purple), Lease (red)

Y-axis: $72,000, $70,000, $68,000, $66,000, $64,000, $62,000, $60,000, $58,000, $56,000

Categories: 36-months, Early Return, Late Return

\*Comparison is of Present Value of After-tax cash flows, considering all tax benefits and disposition of equipment. The 36-month lease is at an effective interest rate of 0% (0.02780). Early termination assumes a 3% discount on remaining payments. Late return assumes payment continues at original level for three months.

$100,000 Equipment

STEP

36 months

54 months
Same Payments

$40,000 - 45,000 Additional Equipment
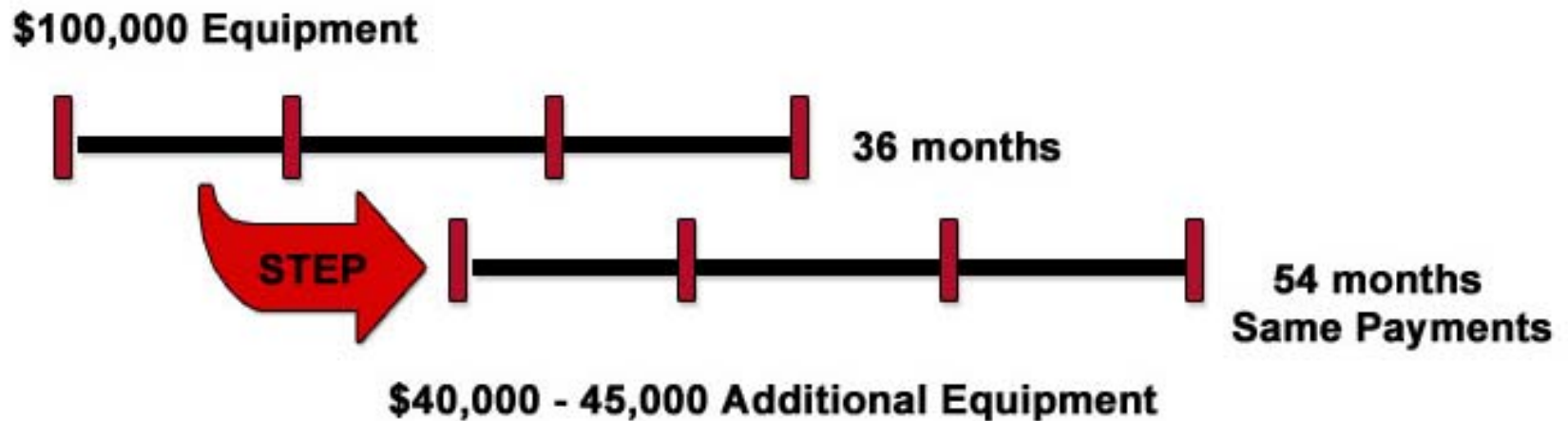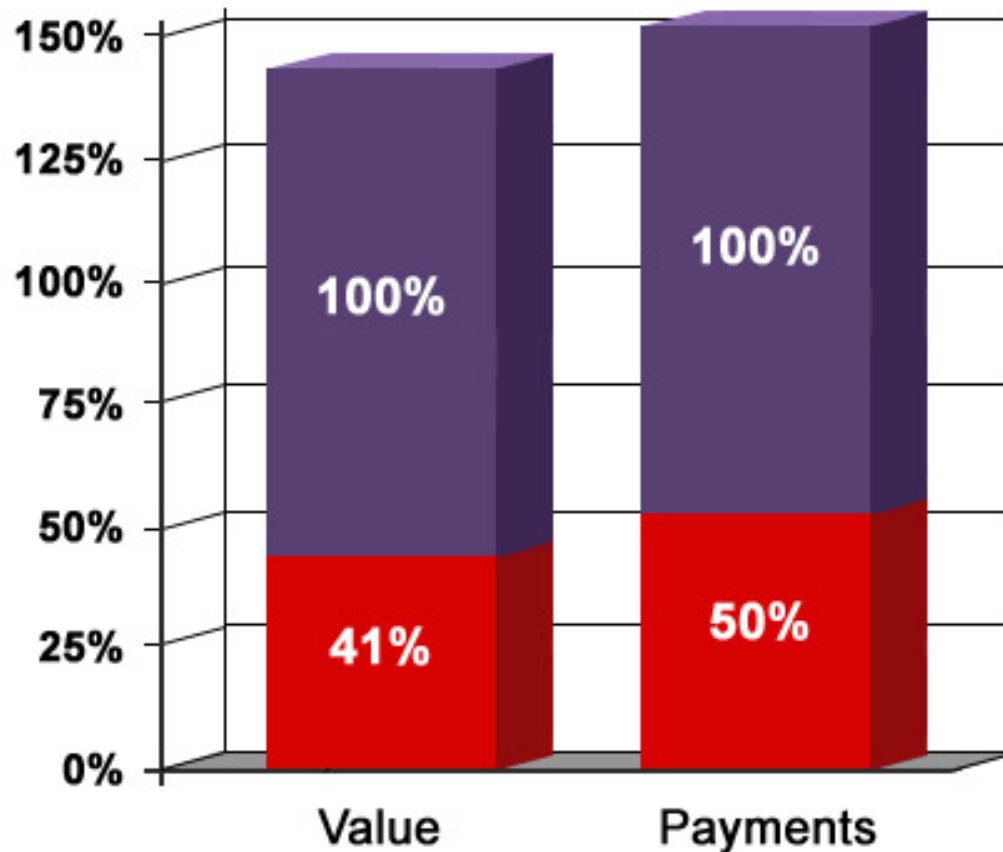
# TMMS®:  An Alternative for Short Lifecycle Environments

- All features of standard "Operating Lease" PLUS:

- Technology Project Financing
  - Includes financing of initial equipment plus exchange funds to support "migration" of the environment over a longer (typically five year) term
  - Fixed or declining payments over the term
  - Cancelable after first 12 months

- Dynamic Asset Valuation

- Includes services to effectively support rapidly changing environments

# Service Challenges

- How do you keep track of the assets?

- How do you ensure you have service coverage? The right coverage?   That you're not paying to service assets you no longer have?

- How to you plan for frequent migrations?

- When is the right time to acquire additional capacity?

- How do you keep track of new product introductions? Manufacturer initiatives and programs?

- How do you dispose of assets?

# The Services Included

# TMMS Example:
## Monthly Payment

| TMMS Net Contract Value | $900,250 |
|---|---|

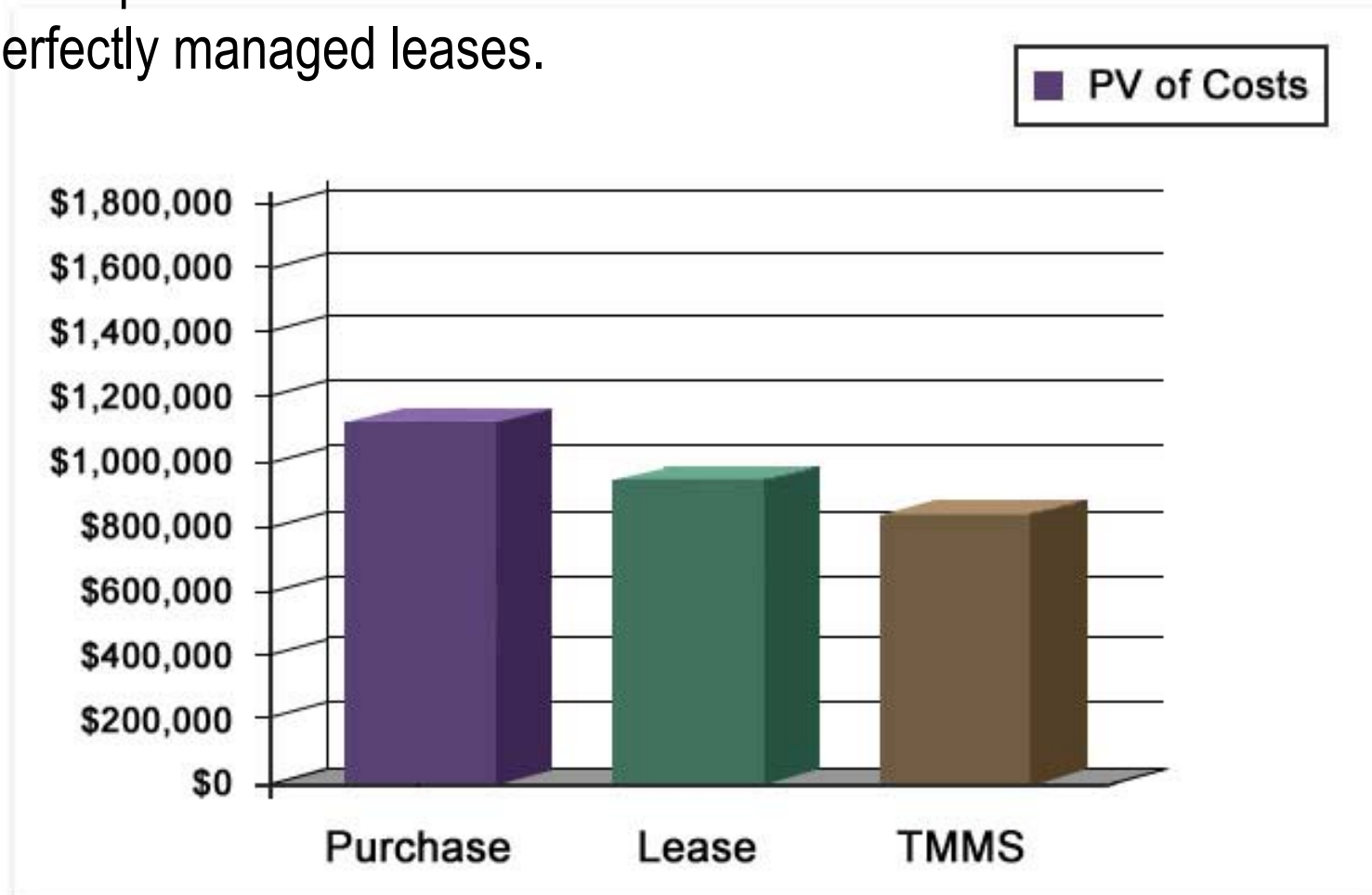| Months | 1-12 | 13-24 | 25-36 | 37-48 | 49-60 |
|---|---|---|---|---|---|
| 5 yrs, 2 yr Exchange | $24,597 | $24,597 | $24,597 | $24,597 | $24,597 |

**Migration**

**Migration**

**$447,089**
**Exchange Value**

**$248,162**
**Exchange Value**

# Comparison:
# Purchase to Lease to TMMS

For this customer, TMMS was a 22% better value than a series of purchases and 12% better value than a series of perfectly managed leases.

# Conclusion:
# Best Practices

- Consider ROI Assessments to answer "Should I Buy?"

- Align the "Useful Life" of your IT Assets with the appropriate Financial Vehicle

- Leverage an ROI Methodology (i.e. AES ITFAM) to uncover money-saving best practices in your environment