Best Practices to Drive Cost and Value Optimization for Infrastructure and Operations

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Business and IT leaders want to allocate more of IT's funding for growth and transformation. To do so means that they must reduce the IT budget that is allocated for keeping IT running. Infrastructure and operations run costs present the greatest opportunity for savings.

Gartner foundational research is reviewed periodically for accuracy. This document was last reviewed on 3 November 2014.

Key Challenges

- Enterprises are increasingly looking at their IT departments to help drive business growth and transformation.
- IT budgets are not keeping pace with growth and transformative demands, forcing IT leaders to consider cost-reduction projects to secure funding for value-added initiatives.
- Since infrastructure and operations (I&O) accounts for approximately two-thirds of the cost of running IT overall, I&O is the focal point for reducing run expenses.

Recommendations

- Form (or reform) a cross-disciplinary I&O cost-optimization team chartered to select cost-reduction initiatives, fast track approvals and direct implementations.
- Build a total cost of ownership (TCO) model to estimate the distribution of I&O expenses. This model is a baseline to ascertain the most impactful cost-reduction projects.
- Select cost-reduction projects using the Gartner impact appraisal model.

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Introduction

Looking to grow and transform the business at an accelerated pace, most business leaders are increasingly calling on their IT departments for assistance. With slow growth in IT budgets — just 4% in 2014 — and 65% of that budget going to keeping IT running effectively and efficiently, the opportunity for IT to use its budget to deliver on these needs is limited.

Consequently, IT leaders must consider reducing "run" costs of IT, so that they can reallocate funds to initiatives that grow and transform the business (see Note 1). Accounting for 65% of run-the-business costs of IT, I&O provides the greatest opportunity for achieving these savings.

We have developed an action plan to help I&O leaders systematically reduce run-the-business costs of I&O. The plan begins with the formation of an I&O cost-reduction team. It then defines recommended actions for the following 90-day period, including modeling the TCO for each I&O functional area, identifying the most impactful methods for reducing costs and then prioritizing cost-reduction initiatives.

As outlined in this prioritized action plan, initiatives will be categorized as short-term (take place within 18 months) and long-term (take place within three years). Longer-term initiatives will be the focus of most clients, because many of the remaining cost-reduction opportunities will require investment and, as a result, an adequate payback period.

The approach we outline in this research has worked well for our clients, and we believe it will benefit you, too.
Analysis

Form (or Reform) the Cost-Reduction Team

I&O cost reduction begins with the formation of the cost-reduction team on Day 1. If this team already exists, add members to gather fresh ideas. When building this team, include:

- A well-respected manager to lead the team, given the sensitive nature of cost-reduction projects, especially concerning potentially fewer staff members.
- An individual who is adept at financial analysis and understands the financial processes of the enterprise.
- IT professionals with diverse talents and perspectives, including those from IT operations, as they will have to live with these changes.
- A manager or executive of business units who may be affected by cost-reduction actions.

Also consider:

- Enabling the team to propose projects and obtain fast-track approval of those projects.
- Rotating team members to align with the knowledge and skills required for the current projects.
- Establishing a team that fits within your IT governance structure.
- Working in conjunction with an I&O improvement team to enhance maturity (see "ITScore Overview for Infrastructure and Operations").
- Making the cost-reduction effort a task force to enable individuals on the cost-reduction team to continue their normal job responsibilities.

Typically, such a team presents proposals to an IT-business steering committee empowered to approve projects (see "Reducing I&O Costs by 15% in Just One Year").

Model Your I&O Environment Using TCO

As the term implies, TCO accounts for the total costs — direct and indirect — associated with an asset over its life cycle. Gartner often finds that vendors and clients misuse the term, using it to refer to any set of asset costs.

We use TCO to model I&O costs using relatively easy-to-obtain metrics, such as the number of installed TBs in storage systems. To assess cost-reduction initiatives, we have found this modeling approach to be sufficiently accurate. It is also faster and easier to use than actual costs from financial reports, as "actuals" are extremely difficult and time-consuming to obtain in the detail and structure required.

Gartner’s TCO modeling approach is bottom-up. At the core of this approach are 11 TCO models of infrastructure platforms (see "How to Quickly Estimate I&O Costs"). These models are based on
Gartner’s IT Key Metrics Data (ITKMD), a comprehensive, extensive and annually updated database of financial and staffing information (see "IT Key Metrics Data 2014: Executive Summary").

We strongly recommend using TCO in assessing cost-reduction initiatives for the following reasons:

- TCO enables you to accurately compare costs before and after a cost-reduction initiative.
- TCO takes into account all costs over an asset’s life cycle.
- TCO ensures a consistent baseline for evaluating cost-reduction projects.
- By amortizing one-time capital expenditures, you have a single TCO number for an asset. Hence, the complexities of dealing with one-time and recurring costs are avoided.

Note: The alternative is to focus on a partial set of costs. Context is then lost; we can no longer determine which project reduces IT or I&O costs the most. TCO is used in conjunction with discounted cash flow (DCF) financial analysis. DCF looks at the financial metrics of a specific project; TCO puts DCF results into the context of impact on total costs.

Estimate TCO for Each I&O Domain, Breaking Down Domain Costs as Necessary

We define I&O as having four domains: data center, networking, client computing and service desk. These domains are linked to the ITKMD cost models (see Note 2).

Figure 1 shows how these domains relate to the I&O budget as a whole and to one another for a typical enterprise (see "IT Key Metrics Data 2014: Key Industry Measures: Cross Industry Analysis: Current Year"). Understanding how these costs relate is important, because what might appear as a large cost reduction within a functional area might have a smaller impact on the I&O budget than a cost reduction in another area. For example, a 20% reduction in data center costs produces a reduction of more than 8% in the I&O budget. In comparison, a 20% reduction in service desk costs has an impact of less than 3% on the I&O budget.
To understand costs at an even greater level of granularity, we can then break each domain into its constituent parts (see Figure 2). With computing at 50% of data center costs, a 20% reduction in compute costs yields a 10% reduction in data center costs; since networking is around 25% of the total data center costs, a 20% reduction in networking costs results in about a 5% reduction in data center costs.

As necessary, we can break down costs even further. For example, computing contains four platforms: mainframe, Windows server, Unix server and Linux server. Each of these platforms can be segmented into hardware, software, staff and facility/power TCO.
It’s important to use a baseline to compare cost-reduction initiatives. We suggest using the percent reduction in I&O budget costs as this baseline. With this context, you can begin to objectively prioritize cost-reduction opportunities.

Explore Cost-Saving Opportunities Within and Across I&O Domains

Once you have estimated the total cost of I&O, you are ready to identify potential cost-reduction projects. Based on our work with hundreds of clients over the past few years, we’ve identified numerous best practices to help business and IT leaders save money:

1. **Review contractual commitments with vendors.** Most enterprises made many of the faster and easier cost reductions following the global recession of 2009. The remaining area that can yield substantial ongoing savings within a calendar year is a contractual commitment with vendors. Expiring contracts and commitments, in particular, pose the opportunity to cut contracts entirely, find a new vendor, or renegotiate terms and pricing. Unless you are doing substantial I&O outsourcing, your largest opportunity for reducing costs likely will be in your contracts with telecom service providers. Although telecom contracts are typically multiyear, they can usually be renegotiated on an annual basis in exchange for extending the contract, say, another year.

2. **Ascertain what has changed in your I&O environment since the last cost-optimization effort.** For example, numerous inquiries address I&O domains that have not been consolidated after merger-and-acquisition activity has taken place.
3. **Recognize that three economic principles are the basis of most I&O cost optimization opportunities.** These principles are economies of scale, modernization and staff productivity (see Note 3). As you assess each I&O domain and subdomains, ask yourself if you can apply one or more of the economic principles.

4. **Don’t overlook reducing the size of your staff.** Staffing makes up the largest cost in I&O, particularly in the data center (see "Staff Productivity Significantly Increases With Data Center Size”).

5. **If considering using colocation services, use Gartner’s economic model to compare colocation to building a new data center or expanding an existing one.** Colocation is not always the least-expensive option. The bigger the data center requirement, the more attractive building your own data center becomes (see "Building a Data Center Versus Buying Colocation Space: Which Costs Less?” — Note: This document has been archived; some of its content may not reflect current conditions).

6. **Review additional opportunities for rationalization, consolidation and virtualization, especially for servers.** As the infrastructure ages and grows, new opportunities for cost savings arise. Operating servers older than three years, for example, are candidates for modernization (see "Reduce Costs and Extend the Life of Data Centers Using Server Refresh").

7. **Do everything you can to contain storage costs.** For most enterprises, storage TCO will not decrease within three years, because storage growth is outpacing the decline in storage TCO on a per-TB basis. Without strong cost-containment strategies — for example, through deduplication — storage cost increases could swamp out cost savings in other areas.

8. **Make client-computing device management more stringent, including lockdown.** Well-managed notebooks have a 20% lower TCO than unmanaged notebooks (see "Notebook Total Cost of Ownership: 2013 Update").

9. **Consider self-service.** Our analysis indicates that when 50% of routine calls are handled by a self-service approach, then service desk TCO is reduced by 20% or more (see "IT Key Metrics Data 2014: Key Infrastructure Measures: IT Service Desk Analysis: Current Year").

10. **Determine where public cloud infrastructure as a service (IaaS) makes sense in your I&O environment.** Although public cloud IaaS is no panacea for reducing costs, IaaS capabilities, including recovery as a service (RaaS), are improving rapidly (see "Critical Capabilities for Public Cloud Infrastructure as a Service" and "Critical Capabilities for Recovery as a Service").

**Prioritize Targets**

Once cost-saving projects are identified, prioritize those projects based on the following dimensions:

- **Cost-savings benefit.** Determine the size of the cost savings on a TCO basis relative to the I&O budget or even the IT budget overall.

- **Payback time.** Ascertain whether the estimated payback period fits the enterprise goals.
- **Customer impact.** Assess how the project will affect business units, end users and customers.

- **Organization impact.** Determine not only whether leadership will ensure that projects go through to completion, but also whether your organization is capable of adapting to the resulting changes.

- **Technical risk.** Uncover potential project risks, and assess whether they will impact the related people or systems' ability to deliver.

- **Investment level.** Determine if the project requires a large, upfront investment, and whether the business is willing to invest at all.

Although this list of best practices may indicate that you must perform extensive analysis to prioritize targets, a simplified approach can be taken (see Figure 3). Here, we evaluate cost-reduction projects using a three-level scheme. This three-level analysis suggests that the sample enterprise should focus on "re-examine network costs," because of its relatively high cost savings and relatively low impact.

**Figure 3. Sample Cost-Reduction Impact Assessment**

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<tbody>
<tr>
<td>Consolidate computer rooms</td>
<td>Went</td>
<td>Low</td>
<td>High</td>
<td>Good</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Rationalize and virtualize servers</td>
<td>Excellent</td>
<td>Low</td>
<td>High</td>
<td>Excellent</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Contain storage growth</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Good</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Increase facility and power efficiencies</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Good</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Re-examine network costs</td>
<td>Excellent</td>
<td>Low</td>
<td>High</td>
<td>Excellent</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Apply client computing trends</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Good</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Enhance service desk performance</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Good</td>
<td>Moderate</td>
<td>High</td>
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**Source:** Gartner (August 2014)

Once the initiatives have been pared down through a simplified approach, you can run a more detailed analyses to create a business case to pursue specific opportunities (see "Decision Framework for Prioritizing Cost Optimization Ideas").
In discussing cost reduction with numerous clients, we learned that many believe they did everything they could as a result of the recession in 2009. Although most "low-hanging fruit" may have been picked, there are still major opportunities. We are in an era of cost reductions that are difficult to make and need time (typically, two years or more) for the required investments to show benefit. In essence, we must spend money to save money. Additionally, much has changed in I&O environments and technology since that deep recession. To stay within IT budgets, further cost reduction in running the business is necessary to shift IT’s focus toward growth and transformation.

Gartner Recommended Reading

*Some documents may not be available as part of your current Gartner subscription.*

"IT Key Metrics Data 2014: Executive Summary"

"How to Quickly Estimate I&O Costs"

"Reducing I&O Costs by 15% in Just One Year"

"Staff Productivity Significantly Increases With Data Center Size"

"Building a Data Center Versus Buying Co-location Space: Which Costs Less?"

"Fight IT Cost Optimization Fatigue With These Saving Strategies"

"Notebook Total Cost of Ownership: 2013 Update"

"ITScore Overview for Infrastructure and Operations"

"Decision Framework for Prioritizing Cost Optimization Ideas"

"Reduce Costs and Extend the Life of Data Centers Using Server Refresh"

"IT Key Metrics Data 2014: Key Infrastructure Measures: IT Service Desk Analysis: Current Year"

"Critical Capabilities for Public Cloud Infrastructure as a Service"

"Critical Capabilities for Recovery as a Service"

Evidence

ITKMD

Note 1 Definitions for Run the Business, Grow the Business and Transform the Business

**Run the business:** This is an indicator of how much of the IT resource is consumed and focused on the continuing operation of the business. It includes all nondiscretionary expenses as part of the run-the-business cost.
**Grow the business:** This is an indicator of how much of the IT resource is consumed, and focused on developing and enhancing IT systems to support business growth (typically organic growth). Discretionary investments are more likely to be included in the grow-the-business or transform-the-business cost than run-the-business cost.

**Transform the business:** This is an indicator of how much of the IT resource is consumed and focused on implementing technology systems that enable the enterprise to enact new business models. This is a "venture" category and is represented by activities such as a brick-and-mortar retailer moving to online shopping, a traditional bank offering online banking (or moving into offering insurance services), or a commercial airline offering new freight services. Gaps in business alignment can be found by examining IT spending as it relates to the day-to-day operations of a business (run), the organic growth of the business or productivity improvement (grow) and its support of major business transformation, new products, services or business models (transform).

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**Note 2  I&O Domain Definitions and Relationship to ITKMD Cost Models**

We define the four I&O domains as:

- **Data center:** Enterprise computing and storage owned by IT and located in small equipment/computer rooms (up to 200 square feet) or larger data centers, including the LAN in data centers, as well as facility-related costs, such as power and cooling equipment.

- **Networking:** Voice and data communications inside buildings and connecting enterprise sites. Networking includes LAN and WAN equipment, as well as telecom services.

- **Client computing:** Desktops, laptops and related devices, including peripherals, such as printers.

- **Service desk:** Staff, tools and hardware/software associated with the receipt, placement and/or handling of technical support calls or contacts within the enterprise.

The relationships of I&O domains with the available ITKMD cost models are:

- Data center — mainframe, Windows server, Linux server, Unix server, storage, data center LAN
- Networking — data networking, voice networking
- Client computing — end-user computing
- Service desk — service desk

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**Note 3  The Three Economic Principles of I&O Cost Optimization**

The three economic principles of I&O cost optimization are economies of scale, modernization and staff productivity.

A concept from manufacturing, economies of scale means that as more units of a product are manufactured, the cost to make a single unit decreases. A similar concept applies to I&O. Gartner’s ITKMD mainframe model, for example, shows a 65% TCO drop as the number of installed MIPS increases by three times or more — from less than 2,000 MIPS to more than 6,000 MIPS.
The modernization principle is this: In most cases, succeeding generations of a high-tech product have a substantial cost-performance improvement over earlier versions. Thus, we expect cost-performance of a high-tech product to improve substantially with time. In I&O, Moore’s Law is a strong driver of modernization, as most I&O platforms are built around semiconductors. Except for data center facilities, annualized TCO reductions for I&O platforms are typically in the 10% to 25% range, resulting in short economic lives (typically three to five years) for most platforms.

Staff productivity improves by work volume and time. For staffing, our key metric is the amount of work a single full-time equivalent (FTE) staff member can accomplish. Using the service desk as an example, staff productivity improves strongly with environment size, resulting in a sharp decline in cost when agents handle contracts. This phenomenon helps explain why a single integrated service desk has largely supplanted several, smaller, special-purpose service desks.