Company i

# Exploiting the benefits of shared computing

## Understanding the value of a shared IT infrastructure, and the new breed of CIO & Project Leader required to deliver it.

This white paper has been formulated following comprehensive research and interviews with UK organisations embarking upon or currently delivering Shared Computing infrastructures.

**It offers:**

- Honest insight into what Shared Computing really delivers and how ready the technology is to cope.
- The key stages of IT transition.
- Advice to CIOs and Project Leaders on how their role must evolve.
- Guidance on the resistance you can expect and suggested methods of addressing it.

# Contents



**This paper focuses on the journey to standardise computing, storage and network resources as a shared IT infrastructure that can support multiple applications and lines of business.**

**Inside, you will learn why there is a need for Shared Computing, what exactly Shared Computing is, and what benefits it can deliver to your business.**

# Contribution and viewpoints from wide-reaching sources

## We are grateful to the following individuals and organisations for their assistance:

**Stuart Tarrant**
**Company-i's Associate Partner for Shared Computing**

**"I commissioned this paper to offer some clarity and guidance"**

Major users of IT are fast approaching a crisis point that will leave them unable to physically accommodate provision or even afford the systems that their businesses will need to remain competitive.

These organisations are beginning to investigate grid and shared computing initiatives as the long term answer, but many are breaking into this uncharted territory for the first time.

I commissioned this paper to offer organisations some clarity and guidance. For those interested in beginning the journey towards Shared Computing, it describes the key stages of the transition, helps you assess your current IT and organisational readiness and finally addresses the organisational and cultural changes required to make any Shared Computing initiative a success.

**www.bankleumi.co.uk**
**www.foreignbanks.org.uk**
**Nigel Brigden, Operations Manager for Bank Leumi (UK) plc, and Chairman of The Operations Committee of the Association of Foreign Banks**
Representing the viewpoints of Bank Leumi and The Association of Foreign Banks, which provides a forum for the sharing of information on industry issues for the mutual benefit of foreign banks operating in and out of the UK.

**www.sky.com**
**Paulot Truchard, Head of Strategy & Architecture at BSkyB**
British Sky Broadcasting is the operator of the UK's largest digital television platform. Paulot shared BSkyB's current foray in to virtual-isation and his views on the roadmap to managing vastly fluctuating demands for compute resource.

**www.catalyst.co.uk**
**Greg Davis, MD & Tim Brazier, Investment Banking practice**
Catalyst is a consulting firm who specialise in enabling clients to successfully deliver complex change in the field of technology and operations.

**www.egenera.com**
**John Warnants, Head of Technology & Services**
One of the fastest-growing technology companies in history, Egenera delivers solutions that simplify data centre infrastructure. Its BladeFrame® system of integrated hardware and software, has set a new standard for simplicity and IT agility.

**Royal Bank of Scotland Financial Markets (www.rbos.com)**
**JPMorgan Chase (www.jpmchase.com)**
Whilst RBS and JPMC shared their views and experiences to aid the construction of this paper, specific comments are under NDA and are thus not attributed.

**www.netapp.com**
**Dave Logan, Consulting Systems Engineer**
Network Appliance offers optimised storage solutions that can help the enterprise move from a resource-specific to a utility model – providing storage transparently and on demand.

**The Forrester Group**
Delivering IT Shared Services – January 2005

**The Gartner Group**
- The Gartner Scenario 2005: IT Leaders' Next Big Decisions
- Positions 2005: Real-Time Infrastructure and IT Utility Redefine Delivery Model
- Gartner Infrastructure Maturity Model, November 2004

# 01 SECTION 1:
## What is Shared Computing and what can you expect it to deliver?

**This section contains:**

- Today's position – are we at crisis point?
- The Silo Monster
- Key benefits of Shared Computing
- Is it really going to happen?
- A feasible launch pad

## Is a crisis point looming? Contributors to this paper describe today's predicament.

Challenging complexity of modern IT infrastructures

Extreme under-utilisation of resources across the IT estate

Extravagant localised over-provisioning to accommodate rare demand spikes

IT estates unable to keep pace with the demands of the business

## Today's position – are we at crisis point?

The silo approach to IT has a lot to answer for. The practice of shackling servers to applications and lines of business is forcing IT infrastructures to grow faster than the businesses they support. As a spokesman for a large UK bank comments grimly:
"The bank wants to grow its revenues by 50% during its next business cycle. You cannot have an IT infrastructure that grows exponentially more than the underlying business. Carrying on with the traditional approach of adding servers to silos would create a monster."

Organisations are fast approaching a crisis point that will leave them unable to physically accommodate provision or even afford the systems their businesses will need to remain competitive.

### The expanding infrastructure universe

Among the big ideas of the cosmos, the expanding universe theory has perhaps the neatest trick up its sleeve. When it needs space into which to expand, the universe simply creates more space – from absolutely nothing. It's a shame this trick can't be used to help accommodate our ever-expanding IT infrastructures – because physical and logical IT resources are in increasingly short supply in today's extreme and high-volume IT environments.

## The Silo Monster

"Large enterprises have reached the point where their server estates are becoming much too complex. Every new application demands the installation of multiple servers. Servers are breeding like rabbits!"
**John Warnants**, EMEA Technology and Services Director, Egenera

Paradoxically, when businesses struggle to provision their IT resources for new applications, spare capacity often abounds – but it is locked away, inaccessible within its silos, waiting to serve the momentary spikes in demand for which it was procured and to which it is dedicated. Dave Logan, Consulting Systems Engineer at NetApp, agrees:
"Before they used our technology, clients were reporting levels of storage utilisation at 30% or below. You can have one server with a free CPU but no disk space, and equally another with plenty of disk space but no CPU capacity. This is a massive cost to the business."

Worse, as serious as these issues are, they are but symptoms of a more insidious cultural problem – silo mentality itself. Silo mentality has long been criticised, but now we see the concrete consequences of architectures built in the very image of the silo mind. Silo mentality creates isolated empires – locking away resources for that one rainy day when they just might be needed. And it's often so widespread it's accepted as an inevitable consequence of work within any organisation. Silo mentality kills business agility.

### What is Shared Computing and what can you expect it to deliver?

The pendulum is swinging back to centralised IT as organisations tear down the silo walls by consolidating and offering IT as a shared service. To some, this looks like a return to the mainframe – but in reality it's taking the IT function to a new level – building upon the past rather than repeating it. Gartner's concept of real-time infrastructure (RTI) encapsulates this evolution from a technology and process management perspective:
"An IT infrastructure shared across customers, business units or applications, where business policies and service-level agreements drive dynamic and automatic optimisation of the IT infrastructure, thus reducing costs while increasing agility and quality of service."

Shared Computing is more than RTI – it combines both technological and organisational change with service management disciplines, effecting a change in which:

- Modern technology and virtualisation techniques combine to create a common pool of resources. Instead of provisioning applications individually, you provision them within this new shared environment which they all cohabit.
- A change of perspective takes place right across the board – instead of aligning people with technology and products, you align them along service-delivery dimensions.

- Reduced operational and capital costs
- Enhanced business agility
- Accelerated time to market
- Improved resource utilisation across the IT estate
- Increased competitive edge

## Key benefits of Shared Computing

John Warnants of Egenera explains: "More complexity equals more risk. To reduce risk, clients are locking down their computing environments which then become very inflexible. It can take weeks for them to install a single new server! So they're left with a complex, stagnant environment and all of its associated costs. The Shared Computing approach is to massively simplify all of this and create a shared pool of resource – storage, bandwidth and compute power."

Shared Computing mandates that in the future, requests for IT resource will be based on units of generic storage, bandwidth and compute power, rather than is the case in most organisations today, where discussions follow the so familiar partisan lines, arguing the merits of HP versus IBM versus Sun et al.

The cultural change of Shared Computing mandates a new operational model that is less to do with technologies and more to do with service-management initiatives as a set of tools to manage IT performance. Collaboration between lines of business is essential, since they will be joint stakeholders in a centralised resource pool – they will have to share a powerful but ultimately finite IT estate.

### What kind of results are worth the pain of infrastructure and organisational change?

First, there is a compelling cost case for Shared Computing – and it's far more than anecdotal. In its 2004 research project for the CIO Group – Delivering IT Shared Services, Forrester Research reported that about half of the 76 organisations surveyed stated they had realised between 5% and 20% cost savings from shared services. John Warnants from Egenera adds some personal experience, citing some of his successful customers: "One of Egenera's NASDAQ equity trading clients implemented a Shared Computing environment and saved 75% of the cost of the alternative technology solution. Another customer is currently half way through a five year phased project involving a large number of servers which will eventually save them $250 million over five years."

Shared Computing also improves companies' ability to respond faster to internal demand, enhancing business agility. John Warnants states that it is possible to fully provision a three-tier architecture in under 10 minutes without human intervention, while Stuart Tarrant, Associate Partner at Company-i, comments: "Time to market for financial systems is crucial, and for some time the IT delivery cycle has hindered this. A Shared Computing approach enables the IT organisation to reverse this trend and become a business enabler."

Stuart Alderson, from Company-i, is working at a major international bank and adds: "We want to get to a position where we can quickly provision for 100,000 transactions an hour, but if we only get 10,000 that's all we want to have to pay for."

Next, Shared Computing can offer a significant increase in resource utilisation across the IT estate – and this has an additional strategic payback since it helps to constrain runaway infrastructure growth. Stuart Tarrant of Company-i says: "If there's one area in which both users and vendors agree that Shared Computing will help, it's in improving levels of resource utilisation. Getting 70% of an infrastructure contributing to a business rather than 30% or less has huge implications."

Shared Computing can also contribute directly to a company's sheer competitive edge, often in situations where cost isn't the major driver. It is already delivering well in financial trading environments where the need to provision rapidly and execute complex algorithms efficiently are paramount. Tim Brazier, from transformation consultancy Catalyst says: "An enormous number of computer-generated transactions are executed every day – for example, in back box trading applications. If we can reduce the time it takes for computers to decide to execute

**"The bank wants to grow its revenues by 50% during its next business cycle. You cannot have an IT infrastructure that grows exponentially more than the underlying business. Carrying on with the traditional approach of adding servers to silos would create a monster."**

a trade – even by milliseconds per transaction – then we can out-perform the competition and add significantly to the bottom line."

Stuart Tarrant added:
"These kinds of technologies were created in order to solve big problems that are simply un-approachable by any other means. When they help us reach novel solutions then the payback – in both financial and market leadership terms – can be enormous."

## Is it really going to happen?

It's already happening – everywhere. CIOs have spent the past few years aggressively centralising IT services.

"Consistent with the trend toward centralising IT, most firms – 83% – are in the process or have already adopted shared IT services for at least one IT function."
**Forrester Group**, Delivering Shared IT Services, January 2005

The Forrester survey goes on to reveal that IT is the most popular function to select for a shared approach, but 67% of firms are centralising delivery and management of HR, and 53% are centralising their finance functions.

An investment bank interviewed for this paper has been operating a shared grid for 2 years, with thousands of nodes centrally provisioned and charged on monthly usage. When they want to deploy an application the servers are already racked, networked, with SAN and backup - this saves the business weeks in provisioning.

Dave Logan, Consulting Systems Engineer at NetApp, considers the trend inevitable:
"This is really like the industrial revolution – manufacturing changed, it almost became unrecognisable – jobs changed, peoples' mindsets changed. But businesses will have no choice – the benefits of Shared Computing are too great. Change they must."

## A feasible launch pad

Forrester's sample group revealed that infrastructure functions are clear candidates for centralised delivery and management under a Shared Services model:

"Data centre operations and voice and data networks are no-brainers"

Forrester reported that 92% of the firms creating shared IT services stated that they operate data centres as a shared service – a phenomenon that has been moving forward, accelerating, for a decade.

However opinion is more divided on the value of shared services for application development and maintenance. Respondents reported difficulty in establishing commonality among their application development toolsets across their lines of business.

**Infrastructure is seen as a more feasible launch pad than applications**

# 02 SECTION 2:
## The journey to a shared IT infrastructure

**This section contains:**

- Self assessment – validating your organisation's current position
- Prototyper, Cautious Mover, or Fast Tracker?
- Gartner's Infrastructure Maturity Model
- The journey to a shared IT infrastructure – are you already on it?
- Beyond virtualisation
- How long will the journey take
- Mandating a cultural shift

# ↘ Self assessment – validating your organisation's current position

### Prototyper, Cautious Mover or Fast Tracker?

Forrester Research argues that your company's readiness for Shared Computing is going to be driven by your organisational appetite for transformation – which depends on internal conditions like executive support – and the business realities you face each day. They suggest that you profile your organisation – by answering ten questions, you can map your company onto one of three categories, each of which faces significantly different challenges on the road to Shared Computing.

*Prototypers* will have significant political obstacles to overcome to create IT shared services, and should consider a prototyping approach. These kinds of companies are riddled with silos and isolated islands of technology, and Forrester suggests that CEOs can begin to shake things up by encouraging outsourcing of high-cost line-of-business IT to a single provider. If this is successful in lowering costs and maintaining service levels, then the dominace of silos can be displaced.

*Cautious Movers* should focus on benchmarking and internal communications to create opportunities for shared IT services, and must work hard, especially in the beginning, to transform IT into a shared service. It is common to start with infrastructure shared services first and begin within a single geographic area.

*Fast Trackers* have an optimal environment and business conditions to make IT shared services a success. They have stable operating models with similar products and services and common business processes across lines of business – plus a political environment conducive to making this change.

**Answer the following questions in the box to the right. Add up the values of your answers, and compare your results with those in the table at the bottom.**

| | | |
|---|---|---|
| **1 Executive sponsorship** (yes=1, no=0) | The CEO of my firm is openly supportive of IT shared services | ☐ |
| | My firm is under an executive mandate to improve operations | ☐ |
| | My firm has succeeded with shared services for other functions | ☐ |
| | I have strong relationships with line-of-business executives | ☐ |
| **2 Operating model/governance** (yes=2, no=0) | My company has operations in three or fewer countries | ☐ |
| | My company rarely experiences M&A and/or divestitures | ☐ |
| | My company's products and services are limited to three or fewer different industries | ☐ |
| | Lines of business in my company are managed centrally, not autonomously | ☐ |
| **3 IT environment** (yes=1, no=0) | We have very few mission-critical legacy applications running in the lines of business | ☐ |
| | There is general dissatisfaction with local IT groups within lines of business | ☐ |
| | **Total** | |

**Source:** Forrester Research, Inc

| | |
|---|---|
| **<7** | **Prototypers** |
| **7–10** | **Cautious Movers** |
| **10–14** | **Fast Trackers** |

## Gartner's Infrastructure Maturity Model

In contrast to Forrester's organisational profiling tool, Gartner's Infrastructure Maturity Model helps companies assess their infrastructure position on the road to a policy-based shared IT environment – it is a blueprint to help them self-evaluate and build forward strategic momentum.

| | **BASIC** UNCOORDINATED INFRASTRUCTURE | **CENTRALISED** INFRASTRUCTURE CENTRALISATION | **STANDARDISED** STANDARD RESOURCES, CONFIGURATIONS | **RATIONALISED** CONSOLIDATE TO FEWER | **VIRTUALISED** INFRASTRUCTURE RESOURCES POOLED | **SERVICE-BASED** SERVICES MANAGED HOLISTICALLY | **POLICY/ VALUE-BASED** DYNAMIC OPTIMISATION TO MEET SLAS |
|---|---|---|---|---|---|---|---|
| **OBJECTIVE** | **REACT** | **MANAGE** | **REDUCE COMPLEXITY** | **ECONOMIES OF SCALE** | **FLEXIBILITY, REDUCE COSTS** | **SERVICE-LEVEL DELIVERY** | **BUSINESS AGILITY** |
| **Ability to change** | **Weeks to months** | **Weeks to months** | **Weeks** | **Days to weeks** | **Minutes to weeks** | **Minutes** | **Seconds to minutes** |
| **Pricing scheme** | **Ad hoc** | **Fixed costs** | **Reduced, fixed costs** | **Reduced, fixed costs** | **Fixed shared costs** | **Variable usage costs** | **Variable business costs** |
| **Business interface** | **No SLAs** | **Arbitrary SLAs** | **Class-of-service SLAs** | **Class-of-service SLAs** | **Flexible SLAs** | **End-to-end SLAs** | **Business SLAs** |
| **Resource utilisation** | **Unknown** | **Known, poor** | **Reallocation** | **Rationalised** | **Shared pools** | **Service-based pools** | **Policy-based sharing** |
| **Organisation** | **Distributed** | **Centralised** | **Shared** | **Consolidated** | **Pooled ownership** | **Service oriented** | **Business-oriented** |
| **IT management processes** | **Chaotic – reactive** Ad hoc | **Reactive – proactive** Monitoring | **Proactive** Life cycle management | **Proactive** Mature problem management | **Proactive** Prediction, dynamic capacity | **Service** End-to-end service management | **Value** Policy management |

**Source: Gartner Group, Inc**

**↘ Standardisation has become a common objective for most IT organisations – even if the end goal is not to deliver Shared Computing.**

## ↘ The journey to a shared IT infrastructure – are you already on it?

The journey to Shared Computing may actually be less daunting than it appears. Tim Brazier agrees: "I think that maybe the very concept of 'moving' to Shared Computing is flawed. In most organisations, huge elements of infrastructure are already shared."

### Is the technology up to it?

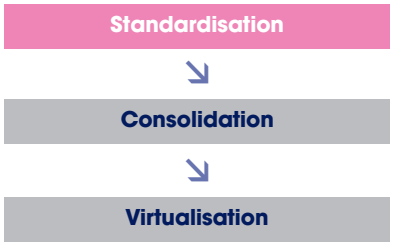
Technology has matured over the last five years. All of the experts we asked were very up-beat on the subject of technology's readiness for Shared Computing.

"I think we are at the tipping point – the enabling technology, in most cases, is ready for Shared Computing now. We have to acknowledge that while the base technology is sound, we're still refining the procedural elements – like integrating Shared Computing with BAU operational practices."
**Stuart Tarrant,** Associate Partner, Company-i

John Warnants, of Egenera, has another qualified perspective: "The technology is ready right now if you accept a small number of constraints – the main one is that it is easier to implement Shared Computing with homogeneous building blocks – all from the same vendor so that you know they are proven to interoperate. It's also important to protect your investment by adopting standard operating systems, and ensuring that the interfaces to the rest of the infrastructure are completely standard. In contrast to homogeneous environments, today heterogeneous Shared Computing can be complex and risky."

The key message is that technology is moving ahead quickly, and there's little need to wait for it to mature further before starting – by the time you can move your organisation towards its goal, it's very likely that the technology will be there to meet you.

### Shared Computing is a multi-level approach




The era of distributed systems and client server technology has left a legacy of diverse infrastructure components and complex configurations. This has led to inefficiencies in terms of system utilisation and operational support models. In order to reverse this trend, standardisation has become a common objective for most IT organisations – even if the end goal is not to deliver Shared Computing.

However, defining a common set of standards for servers, operating systems, storage devices, databases and applications, and then maintaining the infrastructure in accordance with them is easier to state than deliver in practice. It can present a major challenge to budgets and workloads and requires ongoing governance at a senior level to monitor and control new products and solutions.

| Current situation | Prior situation | To do | Inhibitors |
|---|---|---|---|
| Standardised | Complexity – too many products, vendors & configurations. | Create asset-lifecycle standards, processes: gatekeep what comes in, how it changes, when it goes. | Political control of IT acquisitions and lifecycle management. |
| | No consistency, wasted assets. | Eliminate low-priority waste. | Very specific/ picky application requirements. |
| | | Rationalise/Consolidate buying power. | |
| | | Establish effective IT governance to maintain & control technology standards. | |
| Key benefits | Increased manageability | | |
| | Simplified support & maintenance processes | | |
| | Lower operational costs | | |

**Standardisation**

↘

**Consolidation**

↘

**Virtualisation**

As with standardisation, the need to consolidate applications and servers within organisations is often striking and obvious. Data centres are littered with the half-forgotten remnants of past IT programmes. Silo behaviour has yielded underutilised hardware, dedicated to the moderate workloads of single applications, but provisioned to accommodate rare spikes in demand.

Taken to the extreme, this kind of fragmentation leads to situations in which resources are exceptionally and embarrassingly underutilised. It is common to find circumstances in which costly capital assets are sitting around unused for 70% or more of their time. In any other industry, it would certainly be regarded as negligent governance to permit assets to be so poorly deployed.

Whilst it would be desirable, for example, to standardise all in-house application development on a particular set of tools and platforms, there may be compelling reasons why it can't be done. It is therefore not uncommon for standardisation to be approached through discrete, tactical initiatives rather than as a major programme impacting all lines of business.

Despite the difficulties, there are significant benefits to be gained through standardisation in terms of reduced operating costs and managing change but they are a small part of a story that is unfolding on a much bigger stage. Standardisation should be seen as the necessary first step towards delivering a more efficient and agile IT infrastructure. Treated in isolation, it is insufficient to guarantee all of the big wins that come with a Shared Computing approach.

## ↘ The cost benefits of consolidation can be extremely compelling: a ratio of 5:1 or more is not uncommon, taking into account reduced capital expenditure and lower operational overheads.

Fortunately, modern server technologies enable the effective consolidation of under-used assets. Machines can be logically partitioned to allow multiple applications to operate on the same hardware. Moreover, if an organisation has successfully standardised across its estate, greater consolidation opportunities open up because there are correspondingly fewer environments and applications to provision, maintain and support.

The cost benefits of consolidation can be extremely compelling: a ratio of 5:1 or more is not uncommon, taking into account reduced capital expenditure and lower operational overheads. The journey to Shared Computing could end here having realised such considerable savings. However, consolidation still leaves applications and software platforms tied to a discrete set of physical resources, even though they may be sharing those resources with other applications.

| Current situation | Prior situation | To do | Inhibitors |
|---|---|---|---|
| Consolidated | No economies of scale – many assets doing the same thing.<br>Little automation. | Consolidate number of assets and operating system instances using commonality of workload, class-of-service SLA as a guideline.<br>Improve configuration, problem and change management.<br>Start breaking physical chargeback boundary. | Software support and/or licensing.<br>Technologies to enable consolidation.<br>Costs associated with replacing hardware.<br>Political and organisational issues surrounding asset ownership and management. |
| Key benefits | Increased manageability<br>Simplified support & maintenance processes<br>Lower operational costs | | |

This can create worries over availability as all eggs may be seen to be in one basket. Since applications are tied to a fixed set of resources, it can also be painful to maintain and modify large servers in a consolidated environment – if you have to take a machine offline you take it offline for all of its applications. Such an environment is not operating in an autonomous, responsive, and critically – resilient – Shared Computing mode. There is a further stage that must be tackled to facilitate the transition – virtualisation.

**Standardisation**

↘

**Consolidation**

↘

**Virtualisation**

In its simplest form, virtualisation enables infrastructure resources (servers, storage and networks) to be abstracted from the underlying physical components and pooled together to be presented as logical devices. Major vendors have incorporated virtualisation technologies into their applications (Oracle, Microsoft, SAP), servers (HP, IBM, Sun) and storage (EMC, NetApp, Veritas).

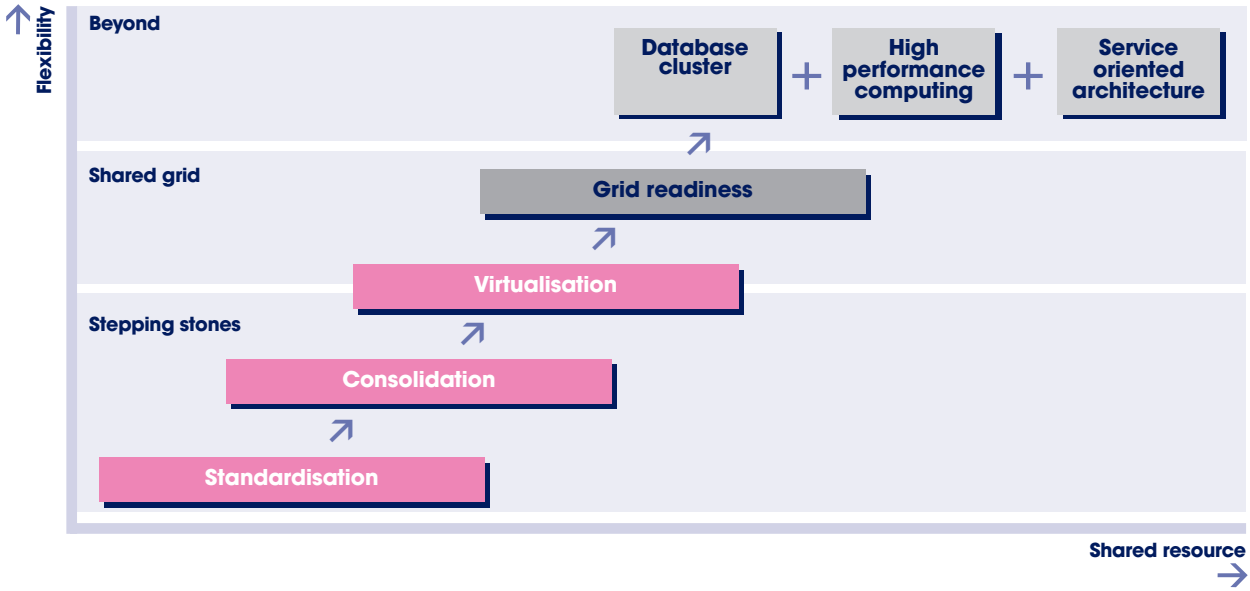
Quocirca released their Insight report on Grid Computing in April 2005. It stated that the degree to which organisations are incorporating emerging server and storage virtualisation solutions into their activities rose by between 50% and 80% from June 2004 to March 2005. Whilst virtualisation is the least mature link in the chain of technology that enables Shared Computing, it is being adopted by the mainstream fast.

Because virtualisation severs the hard-wired physical dependency of applications to a fixed set of infrastructure, the allocation and deallocation of resources to and from applications can be dynamic – as and when required by the application. Typical fluctuations in application workload for the business day, overnight batch, month, quarter and year end processing, can now be addressed by allocating the appropriate compute power, storage capacity and bandwidth as demand dictates.

Using virtualisation technologies, availability and scalability requirements can be satisfied with less system administration effort than is the case with a traditional infrastructure. New resources can be added to the pool, provisioned and configured with minimal impact to a running application suite. Its promise is to facilitate simple, often autonomous, management and provisioning of applications, provide extremely high levels of availability and fault tolerance and dramatically lower infrastructure costs – as low as commodity level.

| Current situation | Prior situation | To do | Inhibitors |
|---|---|---|---|
| **Virtualised** | Assets operate on physical boundaries – no flexibility, capacity is managed one asset at a time. | Mixed workload management, virtual machines, logical partitions, SANs, VLANs.<br>Enable re-provisioning between assets.<br>Enable dynamic capacity change processes.<br>Create dynamic resource chargeback mechanisms based on usage.<br>Centralise capacity planning. | Need for software pricing to become more usage-based.<br>Need for software licensing to become less tied to specific hardware.<br>Political and ownership issues of assets.<br>Immaturity of technologies to enable virtualisation. |
| **Key benefits** | Fault tolerance<br>Inherent scalability<br>Further reduced costs<br>Further improved business resilience<br>Greater agility and responsiveness<br>Improved manageability<br>Beyond virtualisation | | |

## Beyond virtualisation – the gridualised™ infrastructure




There is another stage beyond virtualisation – a service-based environment that makes use of all the underlying layers of technology to deliver highly efficient and agile IT services to the business. At this point, one of the most compelling shared computing services, the Grid, becomes a reality. It is the natural and obvious progression for a powerful, virtualised IT infrastructure. But there is still work to do as service-based active management tools are immature, and not all applications are able to exploit the full benefit of the Gridualised™ environment. Staff also need to become much more service centric. But it will happen – will you be ready for it?

### How long will the journey take?

Nearly all of the experts we interviewed see Shared Computing as a continuously improving process, unfolding over a 3–5 year period, but like any journey, it depends on where you have to start from – and a pilot or 'proof of concept' project is the most common first goal.

### Mandating a cultural shift

Most problems show their form in a technology infrastructure born from a cultural perspective that is long past its sell-by date – the era of the silo and decentralised computing is over. This is why Shared Computing mandates a cultural shift as well as the introduction of the right technologies – and for many companies, the cultural change is the greatest challenge.

The next section discusses the organisation change Shared Computing will evoke, and offers advice from experienced experts on how to prepare you as an individual, and your team.

# 03 SECTION 3: Organisational and cultural evolution

**This section contains:**

- A new breed of CIO
- The death of the traditional IT Manager?
- Understanding organisational resistance
- Overcoming organisational resistance
- Summary of advice for CIOs and project leaders

**↘ A necessary change is occurring in the psychological makeup of the modern CIO – away from running a support function towards active participation within an organisation's senior leadership team.**

## ↘ Organisational and cultural evolution – for you and your team

All of the experts we talked to during the preparation of this paper were unanimous in their view that the cultural change of moving to Shared Computing is very much harder than the adoption of new technology.

Greg Davis and Tim Brazier of UK transformation consultancy Catalyst, help businesses successfully manage transformation and change. A large part of their job revolves around organisations evolving from siloed to service-based models.

Catalyst expressed concerns that some organisations may not be pursuing Shared Computing for the right reasons. Some organisations see it purely as an alternative to restructuring and making redundancies. Others appear to be driven by perception – believing that it's a chance to demonstrate on your CV that you're a forward-thinking IT professional. Of course both these motives are a fundamentally flawed way to begin such a complex transformation programme.

### A new breed of CIO?

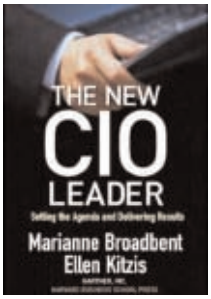
A necessary change is occurring in the psychological makeup of the modern CIO – away from running a support function towards active participation within an organisation's senior leadership team.

Greg Davis believes that the complexity and scope of today's financial organisations are behind this shift:
"The complexity of modern organisations means that old-style control freakery is very hard to sustain. Companies have budgets the size of small countries. CIOs must be better enablers of people and builders of a group of people they rate and actually trust – not just a bunch of old lags who never answer back. Surround yourself with brainiacs and put them in a real team. First class people hire first-class people – second-class people hire third-class people!"

In its research paper The Gartner Scenario 2005: IT Leaders' Next Big Decisions, Gartner concludes that we are now into an era where IT has to contribute, not just enable. According to Gartner, an enabling organisation does just that: it enables business functions and processes to be performed. A contributing IT organisation specifies and quantifies exactly how it will add value to the business.

"As a CIO, you will know you are in an enabling IT organisation when you are called to a conference room to be informed that a merger with another company will be announced in the next hour and that a massive systems integration effort must commence immediately. As a CIO, you will know if you are in a contributing IT organisation when you are in the conference room helping to determine whether the proposed merger is good for the company."
**Gartner Group, The Gartner Scenario 2005:** IT Leaders' Next Big Decisions

Greg Davis believes that it is imperative for CIOs to brush up on the softer skills:
"CIOs must become much better at being salespeople than they ever were before. The old career path where the best technologist moves up in an organisation to become the CIO is now a bad idea – it's a terrifically difficult move for this kind of person because they won't have the wherewithall to manage large



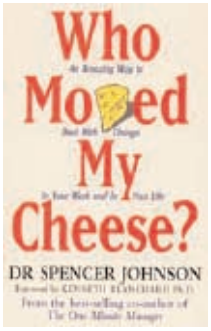

*Recommended reading:* The New CIO Leader: Setting the Agenda and Delivering Results, by Marianne Broadbent and Ellen Kitzis.

Explains how CIOs can become the enterprise leaders they should be.

## The death of the traditional IT manager?

*Recommended reading:*
Who Moved My Cheese? by Dr Spencer Johnson

Change can be a blessing or a curse, depending on your perspective. The message of Who Moved My Cheese? is that all can come to see it as a blessing, if they understand the nature of change and the role it plays in their lives




stakeholder groups. You can't be on a senior leadership team without high-order credibility and persuasion skills. Without these, you simply don't belong at the top."

CIOs must continually challenge orthodoxy. Catalyst cites a client who has done just this by abandoning annual budgetary cycles. His clients' staff were fed up with the exercise that could take up to six months to complete and seemed more and more worthless on each cycle. Many people in the organisation are uncomfortable with this, but it's a sign that the old sacred cows are beginning to fall.

People can also be blindsided when they fail to face up to external realities. Another of Catalyst's institutional clients saw their business being eroded with the arrival of small, boutique newcomers armed with high technology. They recognised this before it was too late and took the alarming step of cannibalising their own business to claim a lead in this new and emerging market – but they had to face the unpleasant challenge of assessing their people's determination to cope under the new regime, and changing people when the fit was bad. To make this kind of transformation, you can't have subservient technical people – they have to be willing to take a leadership role, and to understand at an instinctive level that to survive, a business must be able and willing to change its business model when necessary.

The challenge for IT managers is to adapt to the new lexicon of Shared Computing – to understand that their future architectures are going to be defined in terms of service characteristics and not technologies and products. So far, the experience of a senior architect at a major UK bank has been positive:
"The drivers are people, process and cultural changes – not technology, and most people have reacted very positively to our early progress. But we've not yet had to broker these ideas among old-style conservatives who are simply being possessive of their turf – the kind of people who – at any cost – simply want to retain dedicated servers for their applications."

An operations manager at another financial institution believes they are further into their transition, and have been operating in a consolidated, but not virtualised, environment for 3 years:
"Sharing services has highlighted the need to maintain disciplined change control and capacity planning functions – when disparate business units share the same physical resources, scheduling downtime becomes a delicate task."

Such experiences underline the need for IT managers who can think in terms of end-to-end service delivery, not just technologies.

## ↘ Understanding organisational resistance

### Turf wars and contradictory signals

Because Shared Computing can appear to redistribute turf, it can prompt significant organisational resistance.

"Silos get built in the first place because people are protective of their patch."
**Stuart Alderson,** Company-i

When there's talk of sharing, everyone appears keen, but, as Paulot Truchard from BSkyB notes:
"My four year old son loves sharing, until it's his turn to share."

Contradictory leadership is very common and many people talk about collaborating without collaborating themselves. As Greg Davis says:
"Very often, things don't need to be communicated more – they just need to be done more."

### Silo budgeting and procurement practices

Very often, silos themselves are the entities to which budgets are allocated, and when there's talk of breaking down the silo walls, some very senior people can get agitated. Paulot Truchard from BSkyB again:
"Currently, each project comes along and funds the IT requirement, in a shared model, you must have an enterprise fund and source the funds from there."

If this isn't done well, it can stall progress and people will slowly migrate back to the old way of doing things, or will do their best to sidestep it. An operations manager at a large London financial institution comments:
"Budgeting is still tricky – we try to head the issue off by being proactive and purchasing equipment in advance. It can help greatly if you have strong relationships with sympathetic vendors."

Procurement has to be carefully juggled. Paulot Truchard of BSkyB likened this to just-in-time practices. An investment bank we interviewed confirmed that they had been successful at brokering a relationship with a vendor who supplies hardware on demand. The alternative can make project costs prohibitive, as Nigel Brigden of Bank Leumi (UK) plc warns:
"Don't create a power station that's looking for users.''

### Barriers to motivation

Other common reasons for internal resistance include:

- Fear of loss of control and that people will be unable to fully support the business under the new model
- Scepticism about the achievability of the promised benefits
- Fear of being subject to a bigger, more bureaucratic and remote administrative and management machine
- A suspicion that when something goes wrong, it will be harder to find an accountable person
- A feeling that people are 'giving up' something that is theirs

## ↘ Overcoming organisational resistance

### Get Senior Executive Sponsorship

Many people – and especially old-school traditionalists – will simply never change unless they have some sort of mandate from a powerful and influential internal champion. A broker (who prefers to remain anonymous) at a London trading institution spoke candidly about his team's attitude to IT progress in general:
"I've been in my job for 10 years and I don't want to be replaced by a black box. We subtly stall every IT initiative we can, while giving every outward impression that we are broadly in support of change."

The right thing to do, even when resistance is less extreme, is to employ a senior executive sponsor. Greg Davis views this as vital:
"You need to get executive buy-in from the top – establish a mandate that 'this will be done'. Many organisations are reciting mantras like this but not actually doing it. It takes personal commitment and behaviours reflecting an involvement that says 'how are we doing this?' and not 'can we do this?'.

### Sell achievable and realistic short-term benefits

You need to build credibility before trying to sell long-term strategic benefits. Sell a smaller, slightly more local and incremental improvement first. In Greg Davis' words:
"Don't tell them you're going to take them to the moon – show them how to get to the shops first! Don't disclose those long-term goals at the beginning – it might frighten people or they may become sceptical."

### A pilot project is a valuable learning environment

A pilot project is a great opportunity for a CIO to lead by example. Treat it as an experimental learning exercise – don't punish people if things take longer than anticipated, and try to get away from the traditional blame culture of corporate life.

### Look for the genuine business improvement, not just the cost argument

Build benefits outwards from the pilot project on a non-cost basis – find performance advantages and sell those – look for a genuine business improvement. Many people will not sign-up to a concept until they see a practical path that delivers value – IT people are often pragmatists in their outlook but they will buy into a concept when they see how it can be achieved – and a pilot project is an excellent vehicle to do this.

### Offer your people the right carrots

Genuinely incentivise people to make your Shared Computing projects a success – and this means giving people specific professional objectives. Also ensure that the line-of-business stakeholders are similarly motivated, and that a significant proportion of people's compensation hangs on the success of these projects.

### Market and communicate

Establish and maintain an accurate, well-communicated service catalogue and disseminate it within your organisation. Ensure that everyone knows about your successes – even the minor ones.

### Hide what people don't need to know

Make sure that your resource scheduling and queuing is completely hidden from your customers – without this you will get contention and competition for your resources. For example, large business functions could eventually become dominant and break the shared model for their own selfish purposes.

**"Don't tell them you're going to take them to the moon – show them how to get to the shops first! Don't disclose those long-term goals at the beginning – it might frighten people or they may become sceptical."**

> **↘ "Chargeback is a very tough nut to crack – we're doing something for the first time and the whole issue of chargeback is difficult to approach consistently."**

## ↘ Summary of advice for CIOs and Project Leaders

Each of the experts interviewed in the preparation of this paper was asked what their top advice would be to a CIO about to embark on a Shared Computing initiative – here are some of the noteworthy replies.

↘ **Develop three distinct roadmaps for change –** one for cultural change, one for technology change, and finally, one for business understanding.

↘ **Don't fight against the tide –** the lines-of-business have got to want to change.

↘ **Establish the chargeback and financial model early** and communicate it to your stakeholders.

↘ **Before doing anything, establish a service-level baseline –** understand the levels of service you are delivering now, before changing them.

↘ **Seriously consider outside help –** maybe from a consulting partner. Many organisations have vested interests and preconceptions about what technologies will work best – use somebody from outside the organisation to bring impartiality and strength.

↘ **Spend time marketing –** first market the benefits of Shared Computing as a whole, then market the cost-savings from early wins. Communicating all this is crucial.

↘ **Target internal-facing activities first –** don't choose a business critical application first. Some of the other areas right for transformation include software development and test environments that need to be provisioned and re-provisioned regularly.

↘ **Go for the low-hanging fruit first –** some applications are ripe for a Shared Approach. Virtualised storage might also be a good first project.

↘ **Be honest with yourself when you evaluate your managers and team –** they need to fit the new organisational model.

↘ **A CIO must drive the transition relentlessly –** not asking can we do it but how we do it.

↘ **Watch out for territorial struggles within your new shared infrastructure –** people will want to try to make it look like the old, familiar environment. The reality of what people call Shared Computing isn't the difficulty of introducing it – it's running and using it for 20 or 30 years.

↘ **Be prepared to get much better at change management.** If you have to take a machine down in a shared environment, you may well have to take several applications down as well, not just one.

↘ **Validate the virtualisation technology.** Concentrate on validating your choice of virtualisation technology – it's the least mature item in the whole technology stack.

↘ **Don't underestimate the importance of service availability –** the impact of failure is far wider in a shared model and poor service delivery can give ammunition to sceptics.

## ↘ And what you'll find the hardest

**After you've sold it internally...**
**...you'll have to keep on selling it!**
"Building support and momentum is a continuous process, not an event – you have to keep on selling. For some months, all it seemed we were doing was tailoring slideware to educate successively higher levels of management."

**Instrumentation**
Forrester reported that the firms surveyed ranked measuring service delivery as their top challenge with Shared Computing – many of their respondents wrestled with measuring service delivery improvements.
"Measuring service levels is still very difficult – we are looking to the vendors to provide the tools we will need to manage Shared Computing environments."

**Chargeback**
Chargeback is currently a big technology issue – how do you charge back the use of resources to consumers? How do you graduate your levels of service according to your customers' needs, and automatically manage their Quality of Service accordingly?
"Chargeback is a very tough nut to crack – we're doing something for the first time and the whole issue of chargeback is difficult to approach consistently."

**And even more internal resistance**
Like the experts we interviewed, Forrester cited numerous encounters with executives keen to protect their turf:
"The BUs, especially the executives, wanted to maintain control of their staff and operations. These are CEOs, and they like having control. I liken it to taking toys away from a kid. Previously, the child had a bigger and better train set; you have the job of going in and taking it away."

# 04 SECTION 4:
## Conclusion

**Many organisations have successfully transitioned to these new ways of working and the growing Shared Computing community is defining a future for IT that to many, must be inevitable if their businesses are going to out-compete their rivals.**

## Conclusion

Shared Computing is not a form of dumbing-down and de-skilling, it just isolates a lot of the complexity in infrastructure from people who don't need to understand it. It's about giving them more power to do their jobs, not about taking it away. Today's cars are much more complex than the cars of 20 years ago, and yet, drivers need to know less about how they work, not more. People don't really have to be part-time mechanics any more.

"In reality, all IT services should be like the BBC – just switch it on and use it. You shouldn't need to have the infrastructure at home."
**Nigel Brigden,** Bank Leumi & Association of Foreign Bankers

This is very similar to how Shared Computing hides layers of infrastructure that obscure the business issues, confuse people and consume far too much of their time.

It is true that no-one can foresee where Shared Computing will take us in the long term. And certainly, over time the vendors will need to deliver more products that help to drive and support Shared Computing services as they mature.

It may turn out that the greatest benefit of all will be the change in culture that a genuine move to Shared Computing ultimately mandates. In the meantime, many organisations have successfully transitioned to these new ways of working and the growing Shared Computing community is defining a future for IT that to many, must be inevitable if their businesses are going to out-compete their rivals.

## About Company-i

Company-i is an independent professional services firm that puts organisations with complex infrastructure on the right track.

Company-i's consulting and execution services hold resolute to three pillars:

- Operational efficiency
- Increasing utilisation across the IT estate
- Reducing support and other ongoing costs

**For a situational assessment and expertise on the roadmap to Shared Computing, contact us on 0870 166 7000 or via email: shared@company-i.com**

# Exploiting the benefits of Shared Computing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