Enabling Your Journey to Government Cloud

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Foreword

As the public sector embraces cloud computing, we at Cisco are fully conscious of our responsibility as your long-time Information and Communications Technology (ICT) partner to empower and optimize the major transformation that is underway. We are absolutely convinced that we can provide you with a blend of business and technology services that is unique in the market. Our aim is to help government agencies secure the maximum benefits from cloud computing, while avoiding the many hurdles on the path.

This booklet presents a summary of Cisco’s value proposition for cloud computing in government. Cisco’s strategy has five fundamental steps:

1. Identify key trends/drivers and understand why you may consider Cisco as your partner of choice.

2. Implement a robust governance model for ICT.

3. Adopt a business architecture (including shared services, charge back, and so on).

4. Adopt a technology architecture to support your objectives.

5. Plan-build-manage: How Cisco and its partners can support your evolution to the cloud.
Key Trends and Drivers in the Public Sector

• The move to the cloud can help governments reduce Information and Communications Technology (ICT) costs (for example, through data center consolidation), but more importantly it can improve agility and enable public sector organizations to do things in new ways. Government leaders need to recognize that ICT usually accounts for about 3 percent of government budget, so the real issue is using ICT as an efficiency enabler, capable of creating substantial savings across the whole budget of the state.

• Location independence is the foundation of the modern, flexible public sector workforce and a key to realizing cost savings. Network infrastructure should allow civil servants to work seamlessly from home, from a branch office, or from a shared desk. Immediate benefits include: travel time and cost reduction, increases in efficiency, and improved work-life balance.

• Today’s internal meetings are generally face-to-face. Business video will allow civil servants to seamlessly communicate between different locations (for example, between headquarters and satellite offices in the provinces), and also deliver high-quality public services (for example, social, legal, and fiscal services) to your citizens (as in Guldborgsund, Denmark, where citizen services are delivered through Cisco® TelePresence®).

• Typically, the government owns a large number of buildings in any country. The cost of those buildings, and of managing them, is very significant. The government should implement a real-estate strategy to optimize the number and location of buildings, as well as minimize operating and maintenance costs. The strategy should draw extensively on technology to ensure timely delivery of the potential cost savings from having a workforce that is no longer dependent on the facilities at any physical location.

• Citizens and businesses have come to rely heavily on web applications offered by the government (for example, for handling taxes and for getting customer service). Downtime is not only annoying but can also cost government millions of dollars. For all these reasons, application security, reliability, and performance need to be continually improved.

• A surprisingly large proportion of the ICT budget is taken up by the provision and support of desktops and laptops. Virtual workspace technology represents a tremendous cost savings and efficiency potential.

• In the past, there has been a tendency for individual ministries and agencies to overemphasize the uniqueness of their needs and to demand expensive, custom-built solutions that then become difficult to update or change. The government can get better value for its money by embracing standardization and leading a shared services model where multiple organizations can adopt the same solution.

• The move to cloud computing can involve buying some IT services on short term contracts from the private sector, but building an internal cloud can provide many of the same benefits. The government needs to assess which IT services it prefers to source internally and which it might be prepared to purchase on a short-term contract from an external supplier. It should use an external supplier only when the IT service is not mission-critical or when it is highly confident about the external supplier. Even where it is interested in buying IT as a service, the government should have a robust exit strategy and should be confident that it is buying in a competitive market with multiple suppliers.
A Unique Strategy: Enabling the World of Many Clouds

Cisco’s unique strategy is to not build another one-size-fits-all “mega cloud,” as a number of our competitors aim to do. Instead, Cisco provides prevalidated designs (www.cisco.com/go/cvd) based on best-in-class technology building blocks, which our customers and partners can use to efficiently build business solutions adapted to the local needs.

Cisco’s approach is based on a recognition that cloud technologies and markets are continuing to evolve and that customer’s solutions need to be flexible and future-oriented. In this context, it is particularly important to have an intelligent network capable of supporting private cloud, public cloud, and hybrid cloud solutions.

The Cisco® Cloud vision is based on four core components (Figure 1):

Figure 1. Cisco Cloud Components

- **Cisco Unified Data Center**, the converged engine for compute, storage and network resources, revolutionizing how the IT as a service (ITaaS) stack is deployed and maintained, greatly improving efficiency
- **Cloud Intelligent Network**, enabling secure, reliable, and predictable delivery of cloud services
- **Cloud applications**, including the Cisco Hosted Collaboration Solution (HCS), Cisco WebEx®, Cisco Cloud Web Security, and Cisco Cloud Email Security
- **Cisco Cloud Enablement Services** portfolio
Cisco’s Virtual Multiservice Data Center (VMDC: www.cisco.com/go/vmdc) is one example of a validated design of particular relevance to government organizations.

Essentially, VMDC is a reference architecture that packages all the latest innovations in computing (x86), storage (NetApp or EMC), and networking (e.g. IPv6), and shields your IT teams from the underlying complexity. The benefits are immediate:

- **Reduced time to deployment**—Provides a fully tested and validated architecture that enables technology adoption and rapid deployment.
- **Reduced risk**—Enables your IT teams to deploy new architectures and technologies with confidence, and in compliance with current regulations.
- **Increased flexibility**—Through a web portal (called the Government App Store), you can provide users (including those in other agencies) access to the catalog of Information and Communications Technology (ICT) services that you control. These services may potentially be operated by Cisco or a partner. See, for example, the Cloud Broker model described later in this paper.
- **Improved operational efficiency**—Integrates automation with multitenant resource pools (compute, network, and storage) to improve asset use, reduce operational overhead, and mitigate operational configuration errors.

Avoiding monopolies and lock-in effects is a central component of Cisco’s Cloud vision, where you can freely migrate workloads in a “world of many clouds.” This requires a high degree of interoperability, which can only be achieved through the use of open standards. For this reason, Cisco is an active contributor to a number of cloud standards and forums, in particular OpenStack and ITU-T.
Governance Models

The importance in the role of IT in national government is illustrated by the increasing number of governments that are appointing a senior official in their administration to oversee policy, procurement, and delivery of IT. An administration-wide IT policy was almost unheard of just a few years ago, with each department doing their own thing. The need to reduce expenditures, combined with high profile IT investment failures, have resulted in demand for greater control on the way IT is being deployed in the public sector. Cloud computing is seen as being a key strategy in the effort to bring down IT expenditures and achieve administrative efficiency gains. Table 1 explains some governance models currently being used and how they are implemented.

### Table 1. Governance Models

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<th>GovCloud Governance Model</th>
<th>Illustrative Implementation</th>
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<td>Ministry-led/Agency-led cloud:</td>
<td>In France, DILA (Directorate of Legal and Administrative Information) is a department of the Prime Minister responsible for ensuring public access to laws, promulgating citizen rights and duties, and providing information needed to conduct business with the government. Originally paper-oriented, DILA had the ambition to change its business model to meet changing needs and technologies, particularly in the area of paperless information. Following a successful Cisco Unified Communications deployment in early 2010 (involving Cisco IP telephony and WebEx), DILA deployed an infrastructure-as-a-service (IaaS) solution (based on the FlexPod validated design) in partnership with Accenture, VMware, NetApp, and Cisco. DILA now intends to become an ICT provider for the rest of the government, and has the full support from DISIC, which is the CIO function within the French government.</td>
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<td>Government Information and Communications Technology (ICT) Provider:</td>
<td>The Bundesrechenzentrum GmbH (BRZ), Federal Computing Centre of Austria, is a limited company, with its own management team, and 100% owned by the Austrian government, represented by the Austrian Federal Ministry of Finance. BRZ’s existing infrastructure had served it well for over five years, but was beginning to be challenged by the need to provide more bandwidth for applications while meeting the need to physically separate traffic for some clients, such as the Ministry of Justice. BRZ decided to redesign the architecture using Cisco technology, with the objective of increasing availability, speed, and ease of operations. Applications are now far more responsive. Many servers benefit from speeds of 10 Gbps in the core, and a minimum of 2 Gbps in the access network. The Cisco architecture has provided BRZ with a path towards achieving even greater improvements in data center efficiency.</td>
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Both BRZ and Statens-IT were originally the IT departments under the Ministry of Finance. In other countries, the Ministry of Interior is the entity that spins off its shared IT services.

In a number of countries, the ministry-led model has evolved through a political decision to a spin-off of the ICT organization as an independent entity, while being 100 percent owned by the original ministry. Examples include BRZ, Austria; Statens-IT, Denmark; SITA, South Africa.
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<th>Government ICT Broker:</th>
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<td>Governments are keen to focus on their core mission, and use commercial offerings where it makes sense (for example, workspace-as-a-service). The model ranges from a classic central procurement portal (for example, apps.gov in the United States) to an integrated self-service portal for ICT services.</td>
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The U.K. government published its ICT Strategy (update.cabinetoffice.gov.uk/resource-library/uk-government-ict-strategy-resources) in March 2011 to explain how ICT can help address the U.K. budget deficit by delivering direct cost savings on current ICT expenditure, and by increasing the use of ICT to deliver new levels of operational efficiency to public sector organizations.

The strategy proposes that direct cost savings will be achieved through fundamental changes in the way that the public sector specifies, procures, and operates ICT infrastructure, applications, and services. These fundamental changes are embodied in two key government programs: the Public Services Network (PSN) and G-Cloud (Government Cloud).

Governments are responding to the transition to ITaaS in a variety of ways. ICT governance models are evolving based on local organizational conditions, which are often rooted in the history and culture of the nation. It is important to understand that each country will operate on a blend of different governance models. For example, France is promoting both the ICT broker model (for example, DISIC) in conjunction with the ICT provider model (as with DILA). Each application must be examined to determine the optimal operational model.

If you’d like more information, Cisco can organize a reference visit (or TelePresence session) to discuss how any of the best practices just described can help your organization.
Business Architecture to Enable Government Cloud

There is much more to cloud computing than technology: it covers multiple aspects of doing business, such as billing and charge-back, sourcing model, capital and operating expenditures (CapEx and OpEx), bring-your-own-device (BYOD) policies, service-level agreements (SLAs), change management, planning and providing service desks, and much more. These must all be developed and documented in a robust business architecture. To assess the maturity of cloud in an organization, Cisco recommends a model based on 10 domains, shown in Figure 2.

Figure 2. Architecture to Enable Government Cloud Computing

Cisco can assist your organization in answering the typical questions listed in Table 2.

Table 2. Key Criteria for Government Cloud Computing

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<thead>
<tr>
<th>Domain</th>
<th>Typical question (example)</th>
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<tr>
<td>1. Facilities/Infrastructure (Servers, Storage, Network)</td>
<td>Have you standardized and optimized your infrastructure?</td>
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<td>2. Virtualization</td>
<td>Do you have a virtualization standard?</td>
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<td>3. Tools for Automation/Orchestration</td>
<td>What automation and orchestration tools do you use today?</td>
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<td>4. Store Front (User Portal/Catalog)</td>
<td>How do your users request services today, and how do you foresee them doing it in the future?</td>
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<td>5. Service Management/Help Desk</td>
<td>Have you developed a service management plan for your cloud?</td>
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<td>6. Charge-Back/Show-Back/User-Based Billing</td>
<td>Do you charge back to your users? Do you plan to do it for the cloud project?</td>
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<tr>
<td>7. Process/Governance/Operations</td>
<td>Have you defined target operating models for your cloud environment (process, governance)?</td>
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<tr>
<td>8. Security/Compliance</td>
<td>Are you prepared to address security and compliance requirements?</td>
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<tr>
<td>9. OS/Middleware/Database</td>
<td>Do you plan to automate the provisioning of operating systems/middleware/databases (platform-as-a-service)?</td>
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<tr>
<td>10. Applications</td>
<td>Do you plan to automate the provisioning of applications (software-as-a-service)?</td>
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Technology Architecture, Powered by Cisco

Your organization requires an end-to-end platform to drive the transition toward ITaaS. Cisco’s innovation engine is focused on building this platform, based on three main service pillars (Figure 3).

Figure 3. Cloud Computing Services Framework for Government

1. The Data Center is the engine executing the IT services using a flexible, virtualized, multiservice infrastructure offering the level of availability, redundancy, performance, and management your organization requires. The infrastructure must understand the notion of services, so that all resources are mapped and aligned into virtual containers to connect the end user to the requested applications. This type of convergence is made possible by the Cisco Unified Data Center platform, which can manage change with speed, scale, flexibility, and assurance. It uniquely combines:
   - Unified Fabric, a converged multiprotocol network optimized for virtualization
   - Unified Computing, an architecture aligning compute, network, virtualization, and storage resources in a very efficient and flexible way
   - Unified Management, a framework combining automation, orchestration, and portal capabilities

2. The cloud-ready Cisco Borderless Network is the new enterprise network that will interconnect the data center with the end users, offering secure, efficient service delivery. This requires a network that is dynamically able to extend these virtual containers between the applications running in a virtual instance in the data center and the devices from the end-user workspace. This implies security, speed, mobility, rich media understanding, and visibility and control capabilities.
How Cisco and Our Partners Can Help Your Organization

Cisco stands ready to help you build the next generation of internal IT, not only by providing the best-in-class technology building blocks, but also by further improving and simplifying the operations and delivery of IT services:

• IT can move from being a cost center to being a profit center
• IT can efficiently manage security, risk, and audits
• Manage the deployment of new catalogs of services
• Effectively manage quality of service and service-level agreements
• Improve licensing, migrations, continuity, and support

Using virtualization and automation, your IT team can share resources and provision and de-provision data center services for users on demand. This flexibility promotes high utilization of data center resources to maximize efficiency and return on investment.

Although virtualization provides significant business advantages, it also introduces layers of complexity that require a different approach to manage and often require operational changes. Cisco and its ecosystem of partners are skilled in the operational aspects of data centers, including identifying gaps in IT operations, recommending improvements that help align the business to its objectives, and then making sure recommendations are designed and executed using best practices. In addition to serving many customers, Cisco has deployed and operates large virtualized and cloud environments internally and uses this experience for the benefit of customers.

Cisco Cloud Enablement Services provide a portfolio of professional services that will facilitate a cloud strategy and the transition to a cloud approach for your organization; accelerate the successful implementation and operation of a secure, compliant, and highly automated cloud environment; and rapidly transform IT service delivery, thus accelerating governmental responsiveness and increasing agility.

3. Last but not least, the end user must be able to work seamlessly by using a robust Collaboration Architecture, making it possible to maximize the multichannel communication experience underpinned by the intelligent network. The future workspace will be location independent, offering rich media capabilities (voice, video, collaboration) while being mobile, secure, and reliable.

When these three service pillars are aligned, your organization can deliver IT as a service to end users (including those in other departments) while at the same time mastering the complete delivery chain in order to guarantee high-level SLAs.

Enabling Your Journey to Government Cloud
Next Steps

We would be delighted to discuss and clarify any of the topics raised in this booklet. Here are some of the actions we can consider together:

- Provide a detailed strategic proposal to pave the road to your government cloud computing platform
- Hold a 2-hour presentation of Cisco’s value proposition for government cloud computing
- Organize a full-day workshop to provide your team with all the details
- Run a proof of concept to demonstrate the value of cloud in your organization
- Participate in an upcoming CIO roundtable in Cisco’s state-of-the-art global data center (in Texas)
- Participate in an upcoming virtual CIO roundtable via TelePresence

If any of these points are of interest to you, please contact your local Cisco representative, or alternatively, Patrick Bikar, Government Cloud lead for Cisco Europe, Middle East, Africa, and Russia (pbikar@cisco.com).

Staple business card of the Cisco employee to contact for the next steps