E-Government Portals:
Transforming Government-to-Citizen Relations

INTRODUCTION

The Internet revolution has burst into the halls of government, bringing with it the mandate of speed, service, and global competitiveness. Government agencies at national, state, and local levels are rising to the challenge by leveraging online technologies and new economy thinking.

Just as the Web has made "business hours" a thing of the past in commerce, the pressure is now on governments to be open 24 by 365, but more importantly governments are moving to simplify interactions between citizens and government agencies providing services and information – streamlining and improving the delivery of services to citizens and the business community. Voter approval will follow easy to use government web sites.

In many ways, the demands of the public sector mimic those experienced in the private sector—Internet-speed, global presence and rapid changes in technology. So it's not surprising that on their journey into the new Internet economy, national and state governments are looking at ways to leverage commercial models of e-business to great advantage.

As online technologies gather momentum in the public sector, the Internet is driving innovative service models in government, education, healthcare, and the industry sectors that support them.

Governments Need to Adapt

Following the lead of e-business practices in the private sector, governments are adapting in various ways: responding to public demands for online services, involving commercial partners to provide investment, outsourcing services and solutions, and developing their own models for implementation and best practices.

But governments are also under pressure to meet rising expectations of service. As increasing numbers of consumers become used to the quality of service offered by the best web retailers and service providers, their desire for similar standards in the public sector will become evident. Once the same 24-hour, seven-days-a-week availability and convenience, fast delivery, customer focus and personalization becomes the norm in the public sector, it will not just make life easier, it can fundamentally change the way that people view government itself.

Inter-Agency Collaboration Key To Better Service

One of the greatest challenges in dealing with government agencies is the complexity and redundancy of day-to-day procedures. The average government has between 50 and 70 different departments and agencies. Finding out which is the right one for the task in hand can be difficult. For fairly straightforward matters such as licensing a business, selling a house or registering the birth of a child, a number of different agencies requiring different forms may be involved..

But governments are eager to make changes. For example, whereas departments are vertically organized, many of the services that they have to deliver require complex collaboration between employees across departments. Governments like the United Kingdom have been steadily proclaiming the need for "joined-up government", and are working to foster and build the foundations required and overcome entrenched habits and procedures that conspire against such a goal.

One of the most difficult problems citizens face in dealing with governments is getting sent from one place to another without a clear plan of the steps involved. To overcome this difficulty, governments have recognized the need to map the overall workflow / transaction flow for a citizen interaction or life event. This can be a great help to automation and a correspondingly great opportunity for government to seize control of these workflows, codify them and document them, in the best way possible—a portal that implements them.

Great Potential for E-Government Portals

The Internet offers a solution to both problems. Increasingly, governments are eager to take advantage of technology and are looking for smart ways to invest, seeking a good balance between investment and return. They recognize that they will need to construct Internet portals, similar to consumer portals such as Yahoo!, that can provide a one-stop shop for all of a citizen's needs. A central government portal of this kind has just been launched in Singapore; another is being developed in Austria. In Britain, BT has recently won the contract to build UK Online, a portal to offer government services that should, in a basic form, start up in the autumn.

The potential is enormous, but governments will need, along with the right technology solutions, outsourcing services, and commercial partners to provide investment, a committed leadership, full understanding of e-business principles and a clear strategy for overcoming the barriers to change: the departmental rivalries, the hostility of unions, the fears of individuals and the sheer size of the undertaking. Considering the sophistication of today's solutions, the technology—although crucial to making it all possible—is the least of the challenges.

The Compaq Professional Services team works with key alliance partners — Plumtree, Autonomy, KnowledgeTrack, and IONA Inc.— to deliver the right portal solution for a government agency. In cases where a more robust custom solution is required, Compaq and its partners will bring the appropriate competencies and technologies to handle the

project. Our partners have taken much of the complexity out of providing rapid deployment solutions, which reduces time-to-solution and lowers implementation costs.

SECTION 1: WHY PORTALS?

Among the solutions gaining wide acceptance are portals, which provide single-point access to information and services. Government portals are being designed to allow users to find what they are looking for by using questions such as "How do I...?" or asking about so-called "life events", such as a change in marital or employment status. The citizen does not need to know about the organizational complexity behind the scenes because the portal will take the citizen smoothly to where he/she wants to go. And the same technology infrastructure that is built to link and integrate services for the citizen can provide the platform for a secure government intranet that allows common access for government employees, enabling them to work better together across all departments while business facing portals can streamline transactions and improve communication and procurement with businesses and government service providers.

Benefits to Government and Citizens:

Portals can provide an easy, secure and efficient means for governments to leverage the full power of the Internet. In doing so, governments can provide better services, lower costs, increase revenues and free up resources that can be used to address other needs. Additionally, with the adoption of integrated e-government solutions, government agencies can provide simplified and direct channels of communication exchange to help build upon existing relationships within and among their communities. Government benefits form:

- Less paperwork.
- Faster receipt of payments.
- Reduced costs.
- An increase in existing revenue streams.
- Freed-up resources.

Portals can also allow citizens and businesses to interact with government online, around the clock -- including the ability to make secure payments over the Internet using credit, debit cards and checking accounts. Constituents gain the benefits of:

- 24-hour-a-day, 7 day-a-week access to government services.
- A convenient way to make payments, fill out forms and apply for permits online. An easy way to communicate with elected officials and other civic-minded citizens.
- Access to personalized, such as local public schedules, regulations and resources.

The E-Government Portal: Catalyst for Change

Governments have also realized that the first thing they have to do is to create the right regulatory and public-policy environment for the digital economy—a competitive

communications market, universal access, digital signatures, light taxation, online privacy, consumer protection for web shoppers and so on. But they are also becoming aware that their own e-government strategies can also have a powerful catalytic effect on business in general.

Just as Ford and General Motors can push their suppliers into doing business with them through online exchanges, so can governments, thus galvanizing thousands of small firms into becoming e-businesses. By harnessing the efficiency, transparency and accountability that is inherent in the web to improve all aspects of government-to-business and business-to-government transactions, they can deliver a big economic boost. And by ensuring access for all to the Internet as the main channel of dealing with government, they can be a powerful force in bridging the "digital divide" between the haves and the have-nots and stimulating online education.

Last but not least, portals bring synergy, cost-efficiency, and represent new way of delivering services online. By seeking to improve the quality of their relationship with citizens, they stand to make a big difference in the attractiveness of their country, region or city as a place to live and work. This goes beyond the delivery of services through the Internet, and to the beginnings of digital democracy.

SECTION 2: TYPES OF PORTALS

Public sector organizations are beginning to take pages out of the book of successful e-commerce strategies, and Compaq is helping them with solutions and services, providing both strategic consulting and support for the operational aspects of e-government. There are many types of Portal that can be mapped into government environments including:

- Citizen Facing Portals: Citizen to Government (C2G) or Constituent Relationship Management (CRM)
- Government Facing Portals: Government to Government (G2G) or intranet
- Business Facing Portals: Business to Government (B2G) or extranet, the Global Value Chain (GVC)
- Other special purpose types of portals: E-Procurement Portals, E-Learning Portals, Industry Portals, Online Marketplaces, Consumer Portals

Citizen Facing Portals

The most popular self-service e-government applications that involve transactions of real value with members of the public tend to be web-based systems for paying fines and renewing licenses and permits of various kinds. Online payment of taxes is also making rapid headway, although some legitimate concerns about security and authentication remain.

An obvious example of where C2G portals can make great improvements is registries of motor vehicles. In Maryland, Compaq is designing and implementing a completely new driver's licensing information system to replace an outdated, 30-year-old process and its

systems. The new state-of-the-art system will feature completely integrated digital cameras, card printers, point-of-sale terminals and databases. It will improve fraud detection by using advanced biometrics and other leading edge technologies. And it will be Internet-ready to map into the state's e-government initiative.

Government Facing Portals

In a government facing portal, or intranet environment (G2G), portals can bring together in one simple, personalized Web page all the information and productivity tools relevant to a government agency's users. In one place, multiple departments and agencies can review data, regulations, and reports, analyze key economic, health or industrial metrics, and complete secure e-commerce transactions.

Users who would never have the time to search all the systems available on government data sites can create a personalized, complete overview of what's important in their world on one simple Web page.

Business to Government Portals

Via business to government (B2G) portals, electronic procurement is one of the fastest-growing areas of e-business because it can save both time and money. The same web-based technologies that are saving firms such as GE and Ford hundreds of millions of dollars could have an even more dramatic effect in the public sector. For example, the state government of Australia's Victoria has worked with Oracle to improve the purchasing efficiency of its Department of Natural Resources and Environment by 70%. The department has deployed a paperless system, with access for 5,000 users, provides complete transparency between vendors and users. Payments are electronic, and fraud is kept down by random sampling. As well as saving money, the department is providing better value thanks to the enforcement of business rules and the accountability inherent in the system. The model is likely to be adopted in government throughout Australia.

Yet, some B2G environments have gone beyond the conventional supply chain functions. They are collaborating with the private sector to erect business portals or commerce webs to stimulate the local economy, making it attractive for companies to stay or increase local investments. Noteworthy examples are the Hong Kong portal and the new China ePort in SiChuan province.

In Hong Kong, Compaq is collaborating with Hutchison Telecom to build the world's first bilingual portal for the city - providing e-government services and access to the local merchant base. Benefits include convenience, speed, community, and economic stimulus in the retail economy, and citizen involvement.

While in the Sichuan Province of Western China, Compaq is partnering to build the world's first "e-port" - a commerce hub to enable this landlocked province to access the vast trading resources in the Asia Pacific region and thereby compete with other provinces (like Guangdong) or regional neighbors which enjoy closer ties through proximity to major urban and coastal centers.

Special-Purpose Portals

Special-purpose portals exist for any number of varying requirements. E-Learning portals can provide on-demand Internet training to enable workers to continually self improve It can help to systematically and automatically improve job levels or grades by automatically tracking worker knowledge or courses taken. Distance learning portals can make the classroom everywhere. E-Procurement Portals can foster online procurement by suing the Internet procurement and selling services to dramatically lower the cost of doing business with government suppliers, partners, and customers. Trading communities in the form of online marketplaces allow the exchange of goods and services with suppliers, partners, and other agencies via Internet based communities or other networks, all driven by specialized portals.

In the near future city and county governments with help from partners like Compaq will be building portals that have connections to the small business community. This is one example of the types of special service portals, suiting the different needs of government agencies, that Compaq is in the business of designing and delivering today.

Raising Government Service Levels

Along with the sweeping changes and new wellsprings of prosperity, deepening chasms that divide society along the lines of rich and poor, educated and illiterate, healthy and sick, the building of new portal infrastructures stand to enable broad access to the benefits of the new technologies. By spreading empowerment through access, governments can better their social outreach, educational offerings in remote areas, and help to improve digital literacy by healing the digital divide.

With new technologies governments can raise service levels to constituents while acting as agents of change throughout society. Using the Internet, and easy access portals, delivery of low-cost content can be made available to all providing impetus for broadened educational resources, easy access to services, and foster community involvement in government processes.

SECTION 3: THE CHALLENGE OF BUILDING PORTALS

Portals have established themselves as the *de facto* standard for structuring access to government information and online services. Their widespread adoption by state and local governments around the world exemplify the fact that 'speed' and 'service' are the buzzwords for fulfillment and distribution of most essential services.

Addressing Initial Requirements

The first requirement is not just in building consensus, but to build a clear, shared understanding of the portal objectives and the business processes it should serve. This is an arena in which private sector partners, like Compaq can prove valuable architectural support

The starting point for most e-government projects is the desire to reduce costs and make tax revenues go further. But governments also recognize the Internet as a vehicle on which they can re-invent themselves as a dynamic and user-friendly service provider. To meet those needs Portals must be so constructed as to serve many functions and interests.

Customized Content and Presentation

Government portals, at the simplest level, create an integrated desktop for workers and a single point of access to a wide range of government-wide enterprise information. Successful implementation of a portal requires, access to various data sources structured and unstructured as well as government applications. This information is structured and organized with the ability to search. Further the desktop client allows a significant degree of personalization. Portals thus impact all aspects of a government's enterprise IT infrastructure.

Centrally aggregating and organizing content from disparate intranet sites is only the beginning of what enterprise portals can and should do. IT managers are beginning to add to first-generation enterprise portals abilities for customizing content and presentation for individuals and groups of users. They are also enhancing enterprise portals by adding access to a wide range of applications and other information sources, such as data warehouses and ERP (enterprise resource planning) systems. The result will be a richer, more relevant portal experience for users. Building more personalized, content-rich enterprise portals, however, will require IT managers to collaborate with government units from across the IT enterprise and find a new set of general-purpose portal management tools.

Demand for Richer Function

There's not much doubt that the move to more personalized, content-rich portals is well under way in the private sector. In a survey of 300 organizations by The Delphi Group Inc., 61 percent of companies said they expected to have an enterprise portal in place by the middle of this year, with adoption growing to 83 percent by the end of next year. These companies increasingly view portals as more than a tool for aggregating data from workgroup intranet sites: About 63 percent of the survey respondents defined a portal as either a new paradigm for corporate desktops or a focused dashboard for users.

Designing the Infrastructure

To support the range of functions in a citizen-facing portal, major emphasis must be given to designing an infrastructure that will stand up to the demands of high availability, scalability, and manageability, while providing secure and reliable operation around the clock. Government agencies are finding that the effort to handle these challenges with in-house IT staffs is simply too costly and risky. Quite often, the smarter path is to outsource or work with an experienced and well-connected solutions partner.

To provide personalized access, IT must be prepared to come up with processes for consistently categorizing data and applications. And, where the enterprise portal is designed to provide access to content from across the enterprise, IT must apply those

processes across agency and departmental boundaries. A portal organized around business activities, for instance, would require someone to manage the content by defining the proper categories and meta-data tags. Someone must also be in charge of ensuring that content remains relevant and up-to-date. If a cross section of the government isn't involved, efforts to categorize and provide personalized portal access could fail to match the way people work.

For example, keeping information fresh, distributing ownership of it, etc. will require real commitment and possibly restructuring of the IT organization. The IT organization needs to become an enabler to ensure up to date websites/portals and consistency. IT can also work on the macro-architecture and technology standards to the benefit of all, and should be open to innovation (including technological innovation) from the departments themselves.

SECTION 4: PORTAL DESIGN AND IMPLEMENTATION

Portals are a relatively new phenomenon and many government agencies are looking to portals to solve their information overflow issues, to structure available knowledge within the corporation in such a way that knowledge is available at the right time and in the right place, and to provide increasingly higher levels of service.

In an increasingly digital marketplace, governments must recognize that three commodities drive the online world. These are:

- **Communities,** groups of individuals brought together by a common interest to share information and collaborate.
- **Commerce**, locating suppliers, browsing catalogs, purchasing items, negotiating prices, and running auctions or exchanges.
- **Content**, structured and unstructured data found in repositories and applications both internal and external to the enterprise.

To meet these needs, so that government can perform optimally in the digital world, the Compaq solutions approach provides a complete portfolio that combines a variety of services for portal assessment, planning, design and implementation, and deployment, best-in-class application software, and world-class platform validation and optimization.

That approach integrates disparate internal electronic systems into a Web-centric framework that enables efficient information sharing and collaboration amongst citizens, government employees, partners and suppliers.

Portals provide a web-enabled, role-based window into the government enterprise by:

- Aggregating content from multiple data and application sources
- Personalizing to a particular users needs and access device
- Providing automated categorization and search
- Providing for collaboration and commerce

To ensure breadth in its offerings, Compaq has built up strong partnerships with leading portal providers. These partnerships encompass bundled portal solutions and targeted services. The combination of solutions, in-depth expertise, and lifecycle services makes it possible to deliver the full range of portal features and functionality, including:

- Web servers
- Information architecture, and personalization
- Search, publishing and document management
- Indexing, search services, subscription
- Enterprise applications access
- Collaboration functionality
- Discussion forums, chat
- Application integration
- Workflow and business process
- Facilities for content review and approval

Our approach to portals gives government workers, citizens, and suppliers access to the information and resources they need to do their jobs and integrates both information sources and applications. It is a single unified interface connecting workers to widely scattered and diversely structured information repositories. In addition, through the concept of personalization, users receive the information they choose in a desktop environment whose appearance they can control.

Portal Design Methodology: Building a Portal

Building an Enterprise portal is not an insignificant project. The following section goes through, at a high level, the roles and steps involved in building an Enterprise portal. Full details are outside the scope of this paper.

The following section goes into the GUI tools, features and internal architecture of the Portal in more detail.

Portal Business/Functional Roles:

Each Portal project is different, but there are four main classes of roles involved in building an Enterprise portal, each with varying degrees of interaction and usage.

Web Developer

The web developer designs the web layout of graphics, text, and other features, and defines the style sheets to match the storyboard look-and-feel to the actual portal implementation. This user needs to understand little about a Portal Server directly. The web developer interacts with other users, in particular the business analyst and portal architect.

Portal Architect

The portal architect is the key user of the Portal. This person assembles the portal components and deploys the portal. The Portal architect uses the a Portal Application Server to map the business analyst's storyboards into back-end services.

- The Portal architects also incorporate the rest of the system using a Portal Integration Server and other products of the Portal suite to their portal, if applicable.

- Finally, a portal architect deploys the portal by configuring a Portal Server content cache, the web server, and the back-end resources, among others.

Business Analyst

A business analyst identifies the business processes and components and defines requirement definitions and storyboards that describe the look and feel of the portal. This user needs to understand the Portal Server at a high level but does not typically use the product's features directly. A business analyst interacts regularly with other users such as the portal architect and the web developer.

Portal Administrator

The Portal Administrator is the system administrator responsible for configuring and managing the portal deployment environment and user/role relationships.

Building a portal – 3 steps to Implementation

Building a portal involves three major phases :

1. Identify Business processes and components

2. Map Business processes to XML storyboards

3. Deploy the Portal

Phase 1: Identify Business Processes and Components

Phase 1 is typically done by the Portal Business Analyst and Portal Architect. This is a basic requirement for building a portal – the identification of the business processes, components and data which will be exposed and made accessible through the enterprise portal. Portal Servers come with some type of relational modeling GUI tool to map the data from a RDBMS to an Enterprise Java Bean (EJB) type Business logic layer. During this phase, key components are identified, and mapped into the EJB Business Logic layer, which can then expose these business processes and data out to the web. The Relational modeling tools allow for an existing DB Schema to be used, or new ones to be generated in a flexible manner.

Phase 2: Map Business Processes to XML Storyboard

There are two steps to this phase :

Step 1 : Define style sheets to match storyboard for website look and feel

Step 2 : Map storyboard onto back end systems and services –Integrate back end systems

Phase 2 – mapping the business processes from the EJB Business Logic layer to the XML content layer. This involves three of the Portal roles - the Business Analyst, Portal Architect and Web Developer together. During this stage, an XML Resource Builder GUI tool provided with Portal Servers is used to generate an XML "storyboard" representing the layout and navigation of the website (essentially the website "cityplan"). This XML storyboard maps onto EJB methods in the business logic layer, or directly to a repository of XML data. This stage can be divided into two sections. The Business Analyst is responsible for the definition of the website storyboard and navigation plan through the site.

Step 1 : Define style sheets to match storyboard for website look and feel

This is started in parallel with Step 2 and is done by the Web Developer typically with input from graphic design and marketing. At the end of this stage, JSPs or XSL style sheets are generated to create the look and feel of the site to map on to the website story board.

Step 2 : Map storyboard onto back end systems and services

Integration of the Portal with the rest of the business systems is a key part to building an Enterprise Portal. Once the data, components and business systems to be accessed via the web have been identified, the Portal Architect is responsible for integrating those systems with the web. Portal Servers provide all the products and services required for this. The Portal Architect uses various Portal Server, middleware, and integration tools to integrate the website with all back end business systems – be they based on CORBA/EJB or COM, written in C++, Java or COBOL, and running on a variety of platforms.

Phase 3: Deploy the Portal

This phase is done by a Portal Administrator. Using a Portal Server administration manager GUI allows for management and configuration of the XML repository cache, the RDBMS cache, web server support, threading models, security, etc. During this pahse the user profiles are also created.

Compaq Stands Out With Zero Latency

As governments react to the demand for speed and flexibility, they require service platforms that are agile and highly responsive. For example, via B2C websites customers can avoid completing the pre-ordering process only to find out that the item they want is out of stock. Or, in the public sector, citizens facing lines waiting to present a form could be forewarned in advance of the need for some other form, signed photo or item prior to

visiting a government office. Workflow transparency issues can go a long way towards improving the citizen's experience with government.

With the help of Compaq's Zero-Latency Enterprise architecture, portal functionality can support unprecedented levels of performance. Unlike conventional IT environments, Zero-Latency infrastructure allows an agency or partner to identify and respond to citizen/customer needs in real time, using information that's barely seconds old—even if processing thousands of transactions a second on the same system at the same time. The possibilities for the value chain are stupendous. It is possible to respond to a request or query with the right service, suggestion, or range of alternatives while the citizen is still online.

To achieve real-time enterprise-wide dissemination of new information requires a different architectural approach. Instead of the spider web design of traditional applications integration, a zero latency enterprise operates from a hub-and-spoke concept. The hub maintains views of state data and updates transactional events to the applications as changes take place.

Compaq provides a complete portfolio of professional services to help governments design, implement and manage the components of Zero Latency Enterprise Solutions. Using customer-proven methods, Compaq experts work closely with to ensure that the agency's needs map to the right technology implementation. Starting with a vision workshop, then a move to a business exploration phase and architecture scan before testing things out with a proof-of-concept system. Compaq guides you through the business and IT steps required to create, manage and use real-time knowledge to achieve a competitive advantage.

With Compaq's Zero Latency Enterprise Solutions, a Web site can offer visitors immediate attention. They get a personalized experience, based on their "customer history", right up to their last click. They know instantly if an item or service is available because other enterprise applications share data with the Web site in real time. That way service representatives can answer questions about the transaction, even if it took place just seconds ago.

SECTION 5: COMPAQ COMMITMENT TO GOVERNMENT

Delivering Best-of-Breed Portal Solutions to the Public Sector

Compaq is an industry leader in the designing and deploying complete, robust portal solutions that can grow and evolve as needs and technologies change to provide flexible, secure, integrated and highly reliable frameworks for the most demanding portal applications.

These are the capabilities needed for the successful deployment of government portals, motor vehicle registration systems, parolee-monitoring systems, police report management systems, GIS systems, and large-scale infrastructure improvement projects.

Compaq enables e-government around the world

Compaq experts are automating vital functions in state and local government agencies worldwide, are collaborating with national and state policymakers on vital issues and are engaging with IT organizations to enable a smooth transition to e-government. Government leaders study exemplary models of public and private partnership that employ Compaq solutions across their enterprises as they develop the strategies and market focus to ensure great success today.

Around the globe Compaq experts are engaging with government agencies in Canada, Mexico, Brazil, UK, Ireland, Norway, Austria, the Middle East, India, China and Australia. Worldwide interest in the vast possibilities of e-government is spreading rapidly, largely due to the explosive growth of Internet, communications, and wireless technologies. Country leaders are envisioning plans to leverage the collective power of e-communities to create new value and establish new markets beyond their borders. And, of course, as always, Compaq is ready to deliver value to those who are looking for a trusted technology advocate and solutions provider.

To meet the demands of the online world, today's government IT portal environment must have four key features:

- **Availability**—the continuous delivery of services as measured by the recipient of those services.
- **Scalability**—the ability to meet dynamic capacity requirements without interrupting normal operations.
- **Security**—protection against the full gamut of risks, from destructive viruses, to unauthorized site access, to the propagation of corrupt data or financial information.
- **Manageability**—the ability to proactively monitor operations and applications to ensure continuous service delivery.

Compaq achieves these four portal technology imperatives through a combination of best-of-breed partner applications, skilled service resources, leadership systems technologies, and worldwide delivery capabilities.

Compaq Global Services

As part of its portal strategy Compaq service divisions provide consulting, systems integration, delivery, support, and outsourcing capabilities that meet critical government needs. For example, with the help of Compaq, the State of Florida Department of Highway Safety and Motor Vehicles can now process a license in less than five minutes.

Compaq Professional Services provides portal architecture, planning, design, implementation, and management of enterprise infrastructures and applications. Compaq Customer Services understands the requirements that are essential to ensure the continuous operation of the portal enterprise infrastructure.

Compaq has one of the largest service infrastructures in the world, with 27,000 service professionals and 60,000 sales and service partners serving customers in 200+ countries. With 40 years of service experience, Compaq has extensive depth and breadth of expertise, with engineers trained in the leading technologies: 3400 certified in Microsoft;

3110 in NetWare; 4200 in Cisco; 1340 in NSK; 1350 in Microsoft SQL; 6260 in UNIX; 9570 in Windows NT; and 11260 in *Compaq OpenVMS.*

Compaq Professional Services combines the skills of industry and eGovernment consultants with solution architects, engineers, and implementation specialists to ensure that portal solutions take advantage of all appropriate technologies. Professional Services applies proven methodologies across the continuous lifecycle of services—portal vision and strategy, portal architecture, portal planning, design, implementation and portal management—to maximize government's response to new demands and provides the agility to deploy, vary, or expand services.

Compaq Customer Services also provides proactive, preventive portal services to ensure that a government's e-business portal infrastructure is continuously available, secure, and tuned for optimal performance in any environment—leveraging Microsoft Windows NT, Microsoft Windows 2000, NetWare, *OpenVMS*, *Tru64 UNIX*, or *NonStop ™ Kernel.*

In addition, Compaq ActiveAnswers™ is a unique online knowledge repository and virtual solutions community that delivers information that can accelerate the enterprise lifecycle of portal planning, deployment, and operating solutions. ActiveAnswers also simplifies and standardizes enterprise solutions by providing pre-configured, ready-to-order systems—as well as complementary guides, technical information, tools such as sizers and configurators—to solutions providers and self-integrating end-users.

Service Providers

In today's cost-conscious environment, government IT departments find it necessary to outsource certain portal development or application integration functions to service providers. To succeed in today's booming Internet environment, Application Service Providers (ASPs), Internet Service Providers (ISPs), and Network Service Providers (NSPs) must offer government agencies speed to market, operational freedom, optimal performance, and financial flexibility. This environment demands that service providers must be able to manage phenomenal customer growth, deliver efficient and reliable value-added services at minimum cost, and provide 100% uptime.

Compaq provides *NonStop*™ eBusiness solutions for Service Providers, includes:

- Access Infrastructure
- eGovernment and Application Hosting
- Firewalls and Virtual Private Networks

World Class Partners

The need for greater operational predictability, universal access to government information, and greater integration among business entities requires an increasingly robust, integrated, and flexible foundation for applications. The new e-infrastructure must support development and deployment of e-business solutions quickly, affordably, and with minimal risk.

In addition to strategic alliances with Microsoft, Oracle, Cisco, BMC, and Commerce One and others to deliver and deploy the best solutions, Compaq is implementing the most comprehensive strategy in the industry for developing e-infrastructure portal and eGovernment solutions. Compaq works closely with best-in-class partners such as BMC, Cisco, Citrix, Computer Associates, and Novell to provide a full complement of key solutions including:

- Networking, thin client, and streaming media architectures

- Application integration platforms such as directories and middleware

- Full-function management for systems, networks, storage, and applications

Compaq brings unique value to customers by integrating, testing, tuning, and documenting e-infrastructure solutions to ensure optimum interoperability, reliability, and availability of applications.

SECTION 6: COMPAQ PARNTERS & PORTAL SOLUTION DELIVERY

Compaq is taking a leadership role in providing customers with a complete suite of solutions and services for implementing enterprise portals. And because various types of portals really require a common infrastructure, choice of technology needs to work for all types, including various special purpose portals such as procurement, learning, marketplaces, etc. Compaq's Enterprise Portal Solutions and partners offer government flexible choices that combine Compaq's world-class hardware, professional service expertise, and solutions engineering with best-of-breed portal applications. Available today are:

- Enterprise Portal Rapid Deployment Solutions: Compaq's packaged portal solutions are a response to the growing demand for low-cost, easy-to-implement, easy-to-deploy solutions for the Enterprise Portal Market. Available today are three optimized and pre-tested offerings that provide a core set of portal functions which can be rapidly implemented into a targeted segment of any enterprise. These offerings lay the foundation for a more widely deployed and fully featured enterprise portal, with the flexibility to allow for customization.

Compaq Professional Services utilizes technology from its key alliance partners – IONA Technologies, Plumtree, Autonomy, KnowledgeTrack along with other key relationships, including AltaVista, CMGI, and Microsoft.

In addition, two dedicated Compaq Solutions Centers have been brought online by Professional Services to support Enterprise Portal Services engineers worldwide. Compaq has over 100 portal service professionals trained today.

Rapid Deployment Solutions feature:

- Enterprise portal software from partners and a tuning and operating guide for each software solution.

- Compaq ProLiant DL380R server with optimized CPU, storage and I/O bandwidth, and Microsoft NT;

- Rapid Deployment services to get customer portal solutions up and running quickly, followed by on-site system, management and production reviews;

- Enterprise Portal Services: Compaq Enterprise Portal Services enable customers to plan, design, implement, support and manage enterprise portals that are customized to accommodate their unique business needs, technical constraints, enterprise culture and environment.

Compaq is a strong vendor of enterprise NonStop eBusiness systems, solutions and services. Our partner's e-business application infrastructure and enterprise portal tools and technologies are key to Compaq's growing success in this area. Compaq partner enterprise technology and expertise enhances Compaq's ability to deliver large-scale NonStop e-business solutions across multiple Compaq platforms.

With the right technology government can move beyond simple portals to enterprise portals that have strong real-time integration to back end systems built on standard technology platforms like J2EE and XML. That can make packaged and in-house custom applications work together, while integrating Internet technologies to enable more C2G,G2G and G2B integration possible. The result is an increase in government's agility and responsiveness by enabling it to quickly change its software to take advantage of new opportunities to provide services to citizens that allow citizens to do "online everything".

Compaq NonStop™ **Solutions Advantage**

At Compaq, we understand the critical nature of e-government infrastructure and online services, and are aggressively building continuous computing capabilities into our solutions, products, architectures, and services.

Compaq has major strengths that give public sector clients a powerful competitive advantage in facing the challenges of e-government:

- reduced time-to-solution, costs, and the risk of 24 x 7 service delivery by providing proven solutions from best-of-breed partners, cost-effective industry-standard systems, and worldwide volume distribution.

- experience and skills to deliver 24 x 7 availability, scalability, security, and management capabilities through high volume transaction processing, systems and application integration, and the mission-critical services required for responsive e-government.

Through Compaq NonStop™ solutions, Compaq enables government agencies to reach the highest levels of service delivery and operational excellence — more affordably and faster than any other Internet solutions company. As a result, public sector organizations can better position themselves to create effective models of collaboration and service — reaping the rewards of operational efficiency, business agility, and client satisfaction.

For more information on all *Compaq NonStop*™ solutions for e-government, visit our website: www.compaq.com/state.

For additional information on a variety of Compaq Portal Services see:

http://www.compaq.com/solutions/messaging/km_index_1.html

ATTACHMENTS: IONA papers on iPortal Server and Application Server