Government Cloud Enablement Platform

NOKIA

Transforming government services: Government Cloud Enablement Platform

Change lives with a new era of government services

All over the world, governments are using information and communications technology—or ICT—to provide unprecedented levels of service to their citizens. They are creating public sector aggregation networks that allow agencies to communicate with each other securely. They are spearheading open data initiatives that make their operations more transparent. They are leading the way to the future with large-scale transformation projects like these that are changing lives.

Opportunities exist for stakeholders at every level of government to take the initiative, to build applications or databases, and address the day-to-day issues faced by the public they serve.

But the grassroots approach brings its own set of challenges. Schools and universities, hospitals, social services, municipal offices—each government organization has its own IT infrastructure. Development is happening in these isolated IT silos. And that means considerable duplication and waste.

The challenge: You need to find ways to consolidate your government's digital assets and maximize common processes, without squelching the grassroots initiative that is doing so much to transform how you interact with your citizens.

Distribute resources, centralize control

Nokia's Government Cloud Enablement Platform—or G-CEP—addresses this need.

Nokia has designed an inclusive, end-to-end approach that lets you capture and streamline your government's grassroots services development through a distributed open cloud infrastructure.
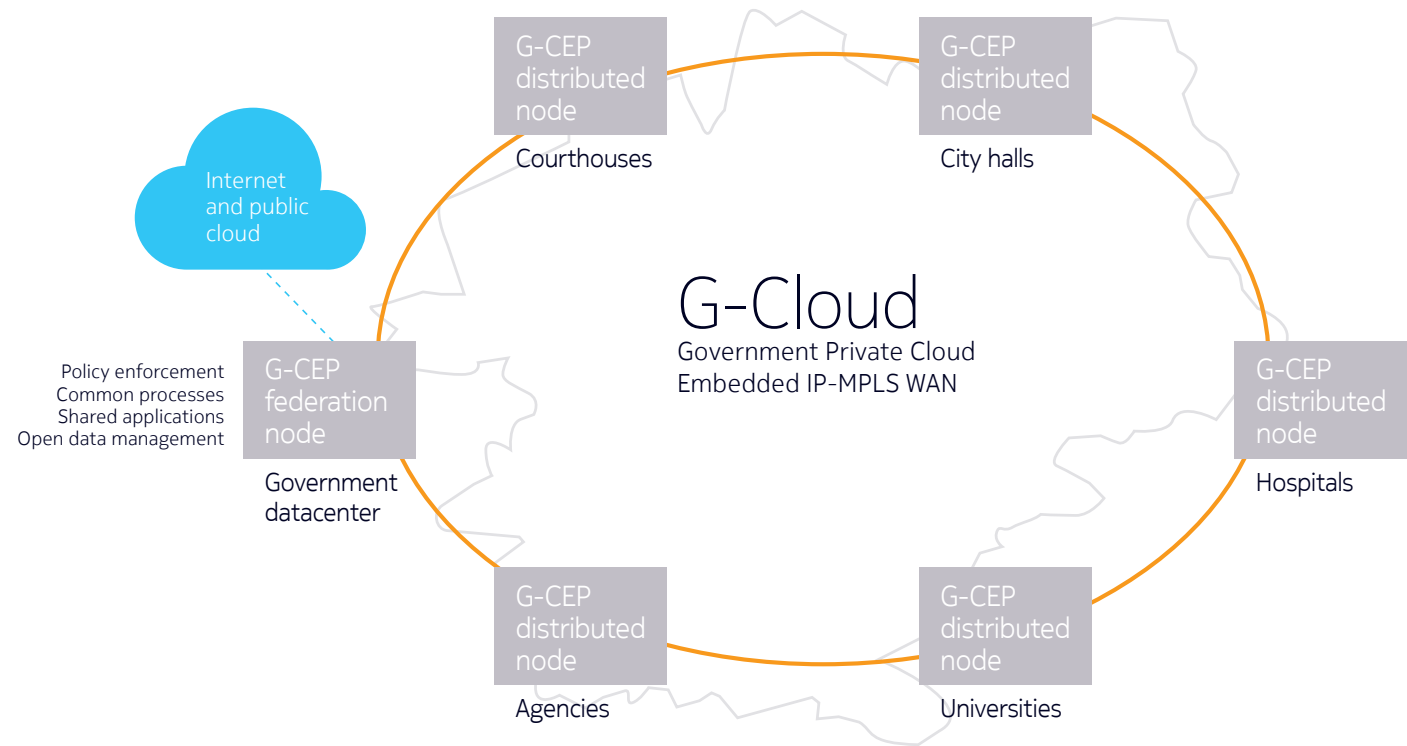
G-CEP brings localized computing, storage and network resources to individual departments, while the Government Cloud service provider controls those resources from a central location as a virtually single datacenter. In doing so, G-CEP consolidates the IT silos. And it encourages teams on the ground to create and build services that can be broadly shared, bringing real value to the public.

The benefits of the distributed cloud

Our G-CEP business model takes advantage of our distributed cloud technology. It combines the benefits of a centralized management system with distributed datacenter resources in a scalable architecture.
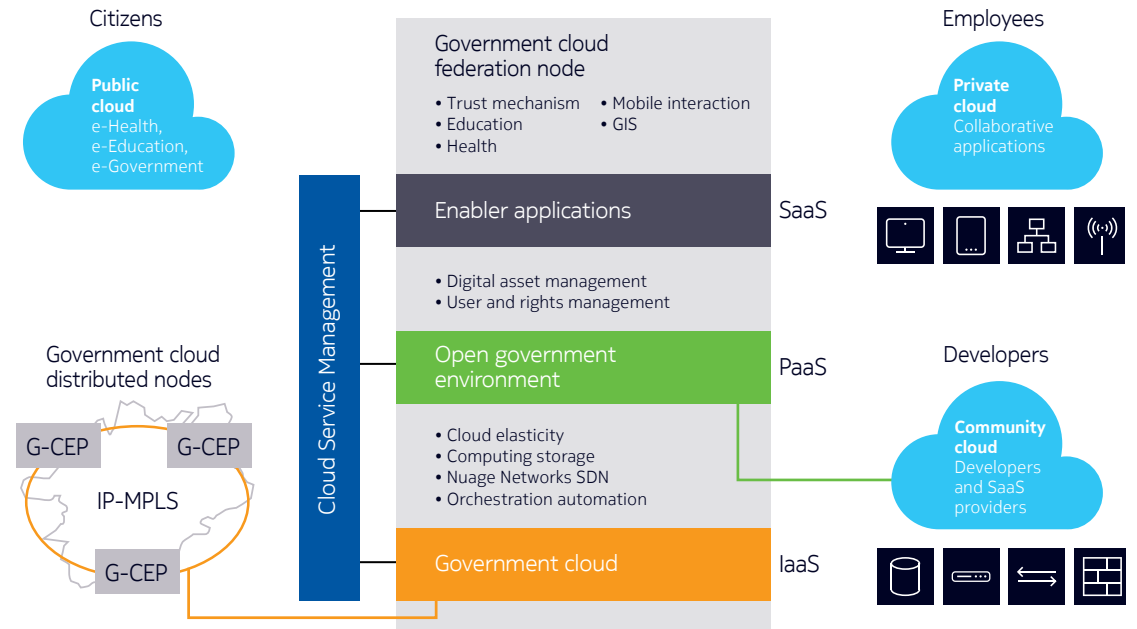
The different public service organizations benefit from local computing, storage and network resources that live on the premises, bringing very low latency and high service quality to the people these teams serve. G-CEP provides a unified view, controlling these distributed resources from a central location as a single, virtual datacenter.

G-CEP offers more than cloud infrastructure services. It also offers platform services that can be opened to application developers. The developers build and share, with each application and dataset becoming a foundation for the development of more end-user applications. This is called Government as a Platform—or GaaP.

G-CEP distributed node

Courthouses

G-CEP distributed node

City halls

Internet and public cloud

G-Cloud
Government Private Cloud
Embedded IP-MPLS WAN

Policy enforcement
Common processes
Shared applications
Open data management

G-CEP federation node

Government datacenter

G-CEP distributed node

Hospitals

G-CEP distributed node

Agencies

G-CEP distributed node

Universities

3

How do we do it?

Nokia's G-CEP solution offers three layers in a turnkey implementation.

Citizens

Public cloud
e-Health, e-Education, e-Government

Government cloud distributed nodes

G-CEP   G-CEP

IP-MPLS

G-CEP

Government cloud federation node

- Trust mechanism
- Education
- Health
- Mobile interaction
- GIS

Cloud Service Management

Enabler applications — SaaS

- Digital asset management
- User and rights management

Open government environment — PaaS

- Cloud elasticity
- Computing storage
- Nuage Networks SDN
- Orchestration automation

Government cloud — IaaS

Employees

Private cloud
Collaborative applications

Developers

Community cloud
Developers and SaaS providers

G-CEP IaaS: Government distributed cloud infrastructure

The Infrastructure as a Service—or IaaS—layer of G-CEP is a distributed cloud infrastructure.

At its core is a single G-CEP federation node that provides a centralized cloud orchestration and management system. Distributed cloud nodes embed network, server and storage infrastructure locally.

Features

- Uses market-standard cloud stacks
- Comes in predefined small, medium and large form factors
- Features pre-integrated cloud software designed for distributed clouds
- Provides application-specific network bandwidth with low end-to-end latency
- Offers a complete technical environment for datacenter virtualization and cloud services

Components

Nokia 7750 Service Routers
Nokia 5620 Service Aware Manager
Nokia's IP-MPLS service routers—integrated with a central service aware manager— provide applications with direct access to network quality of service (QoS)

Nokia CloudBand Infrastructure Software
Pre-integrated, mounted and tested server computing, storage and switching. Validated with Nokia AirFrame, HPE C7000, Dell PowerEdge R730, etc.

Nuage Networks™ Software Defined Networking
Our SDN solution is fully integrated with CloudBand and allows network resources to be as consumable as compute and storage resources

Nokia CloudBand
The distributed cloud infrastructure is managed by a single centralized management and orchestration system (MANO)

G-CEP PaaS: Open government environment

Our open government environment (OGE) is G-CEP's Platform as a Service, or PaaS, layer. It is an open API platform that provides an open, secure, controllable gateway through which you can share your government's digital assets with application developers, SaaS providers, and those who own your datasets.

Software procurements are changing from a classical, license-based model to a Software as a Service model. OGE lets you embrace this model while maintaining control of your government's digital assets and operational costs. It also allow you access by domain so you can readily comply with the different policy require-ments across such various areas as health, finance and public safety.

Features

- Provides an enabling environment for application developers in various public service sectors
- Serves as a collaboration tool to develop new apps and services by opening its interfaces to all stakeholders in the public sector
- Offers developer access to G-CEP core features via a comprehensive and secure set of northbound interfaces based on XML, REST, SOAP and web services technologies
- Enables public access to data directories while controlling, monitoring, recording and monetizing all access via a real-time API gateway
- Provides stable interfaces for the applications consuming your digital assets and efficient management of their updates and status
- Connects government digital assets to reachable end-points via stable APIs, thereby guaranteeing maximum usability and consistency, and allowing each addressable asset to become a building block in the creation of other applications

Components

- Government application marketplace
- Identity and policy management
- Service subscription
- Government digital assets store
- Real-time access gateway
- Federated authentication

G-CEP SaaS: Enabler applications

And here's the payoff: A streamlined environment that fosters innovation and the successful deployment of new services based on shared enabler applications.

The G-CEP SaaS layer provides common software tools and processes—Enabler Applications such as authentication, e-signature, or mobile communications—which can then be embedded in new end-user applications.

Through the G-CEP IaaS and Paas, the G-CEP can enforce common processes and foster the sharing of digital assets. You can, for example, enforce a unique authentication mechanism on all applications, or impose one source of document certification. Or you can optimize costs by encouraging application developers to use a common communication function.

Enabler applications are agency agnostic, can be shared by all government bodies, and are accessible via programming interfaces exposed in the G-CEP Open Government Environment.

Two such enablers are pre-embedded: a trust mechanism and mobile interaction.

Components

Trust mechanism

More than IT security, e-Government services rely on trust functions. This enabler provides a common trust mechanism for:

- **Strong authentication of users:** Verifies user identity when accessing an information service or performing a transaction
- **e-Signature document certification:** Enables transactions between two parties, create a legally-binding e-signature, and serve as universal legal proof
- **e-Safe:** Provide secure storage and legal proof creation and ensure transaction traceability

Mobile interaction

Today's workforce is mobile. This enabler is a powerful campaign management system with mobile interaction toolsets based on SMS and MMS. All other enablers selected by Nokia are based on open technologies and expose their capabilities via the Open Government Environment.

Examples of mobile services managed by this enabler are:

- SMS notifications to individuals
- SMS campaign management (target populations)
- Mobile integration with EDM (Electronic Document Management) applications
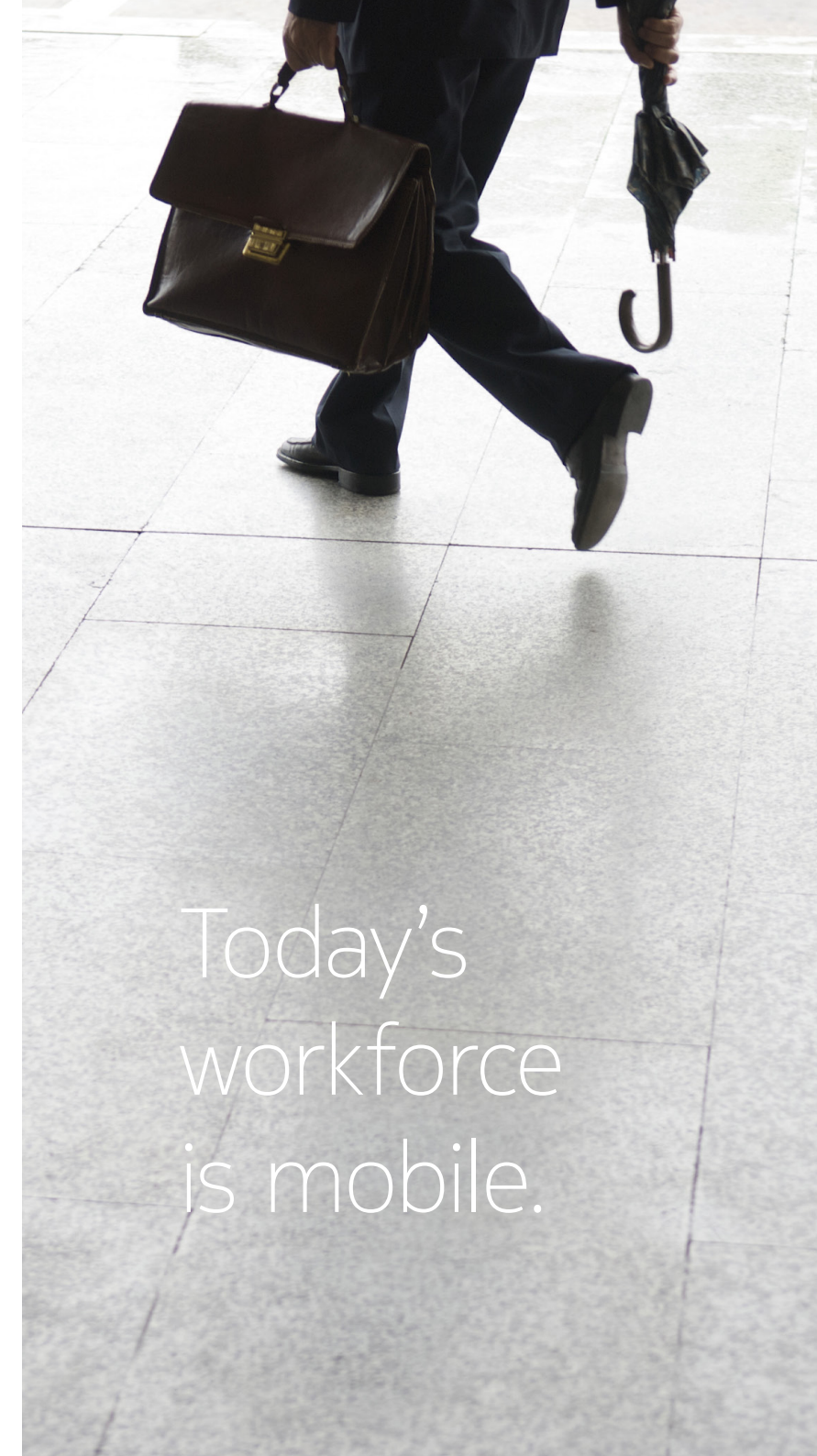
Today's workforce is mobile.

Nokia G-CEP can help you

- Consolidate silos between departments
- Foster grassroots ideas
- Manage it all from a single virtual datacenter

G-CEP can do all of this for you, reducing complexity and cost while fostering initiative and the development of new services. Just imagine the possibilities.

Opportunity	Our approach
Public cloud services - You are outsourcing your government's non-sensitive in-house functions to external partners as part of a switch to an SaaS model.	G-CEP consolidates and manages external SaaS.
Datacenter consolidations - You are dramatically reducing the number of datacenters by virtualizing datacenter functions and outsourcing non-sensitive applications to partners.	G-CEP complements your strategy by offloading datacenters on certain workloads.
Government as a platform - You are faced with a proliferation of IT silos as motivated, creative teams work to solve problems on-the-ground.	G-CEP plays a central role here, with an open platform for application developers and a special focus on e-health, e-education, and other shared applications.
Trust and security - You're looking for a platform that unifies access to all applications and services with federated identity management.	Our hybrid cloud approach combines the agility of cloud technologies with the security and performance of a deeply secure, private in-house cloud infrastructure.
Open data - Open data policies allow public access to non-critical government data. You need to provide this transparency while maintaining confidentiality.	G-CEP's Open Government Environment lets you control your digital assets, which allows you to expose assets by controlling, tracing and monetizing access through a centralized API control gateway.
Consistency of services - Different public authorities provide different services to citizens—and that's valuable. But you want to provide a common approach so shared processes are done the same way every time.	Enabler applications form a common set of trusted building blocks for application developers. These can be used to enforce a single way to authenticate users, certify documents, and so on.

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