COMPETITIVENESS AND INNOVATION FRAMEWORK PROGRAMME

CIP-ICT-PSP-2013-7

SERVICE DISTRIBUTION NETWORK AND TOOLS FOR INTEROPERABLE PROGRAMMABLE, AND UNIFIED PUBLIC CLOUD SERVICES

Deliverable D2.2

Pilot Scenarios, Use cases and Pilot Operations Requirements

Workpackage	WP2 Requirements, Specifications and Pilot Scenarios
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Abstract:	This document covers performed analysis of STRATEGIC pilot scenarios: use cases and requirements for operations. It will be used for planning and performing of pilot operations in WP4. In addition, it serves as a baseline for STRATEGIC capabilities defined in WP3.

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Document Revision History

Version	Date	Modifications Introduced	
		Modification Reason	**Modified by**
V0.1	22/07/2014	First version	NICPB
V1.0	23/07/2014	Proof reading and quality review before submission	BT, ATOS
V1.1	02/10/2014	Changes on v1.0 to update the figure 11 and the description of use case "Genoa-3: Cross-border issuance of Certificate of Residence"	ATOS

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Definitions, Acronyms and Abbreviations

Acronym	Title
Dx	Deliverable X (X is a number).
IdP (Identity Provider)	Service for issuing identification information for interacting systems.
ISP	Internet Service Provider.
Local Government Transparency code	A code defining minimum data that local authorities should be publishing, the frequency it should be published and how it should be published.
Marketplace (STRATEGIC marketplace)	STRATEGIC platform management interface with integrated application catalogue.
NAS	Network-attached storage.
Open data	Concept of published data freely available to everyone to use and republish.
Pilot scenario	Detailed description of a use case provided by STRATEGIC partner.
PSN (Public Services Network)	UK Government program to unify the provision of network infrastructure across the United Kingdom public sector.
SAN	Storage area network.
Semiramis	EU CIP-PSP project creating a pilot infrastructure for e-services requiring secure authentication and management.
STORK	EU CIP-PSP project aiming at creating a single European identification and authentication area.
STRATEGIC	Service distribution network and tools for interoperable, programmable and unified public cloud services.

Table 1: Definitions, Acronyms and Abbreviations

Executive Summary

The main target of this deliverable is to create a summary of the analysis performed on pilot scenarios by splitting them into use cases and drafting their operational requirements.

In total, 11 applications were analyzed belonging to different scenario types. For every application, the expected added-value was analysed, both for the applications-per-site and the STRATEGIC framework. In addition, cross-scenario links were established to potentially benefit from the synergy of the applications.

Each scenario was categorized by its type – if it is porting of an existing application, deploying of a ported application to a new location or creating a new service using STRATEGIC services. These generic flows were analysed using the latest draft of the STRATEGIC architecture.

Furthermore, the pilot operational requirements were collected and grouped at the end of deliverable. Both technical and non-technical aspects were considered.

Finally, this deliverable will serve on one hand as input for Task 2.4 - Security by Design Specifications in order T2.4 can lay-out the privacy specifications and on the other hand, also for WP3 to create the guidelines to fulfil the planned use cases. Additionally, this deliverable will be used as input for the planning out operational aspects of pilot operations within the WP4 framework.

1 Introduction

1.1 Scope of the document

The main goal of the STRATEGIC project is to facilitate organizations and notably public bodies to leverage the benefits of public cloud services, through boosting three complementary adoption directions: (a) The porting of existing online services to the Cloud, (b) The adaptation and localization of existing services, which have been successfully deployed by other organizations and (c) The composition of new public cloud services on the basis of available legacy services.

D2.2 aims at collecting, analyzing and documenting the use cases provided by the scenario partners. Deliverable reflects the work conducted as part of tasks T2.3.

1.2 Target audiences

The primary targets of the document are internal users from WP3 and WP4. In addition, this document is connected to the architecture task of the WP2 and should be taken into account when designing services of STRATEGIC.

1.3 Structure of the document

This document is split into three main sections. Introduction part is describing the document. In the "pilot scenarios" chapter, a summary description of each analyzed use case along with links to the planned STRATEGIC architecture is given. The chapter analyzes use case and provides diagrams for each of the planned scenario. That last part is 'Pilot operations requirements' - for each use case detailed requirements towards the hosting infrastructure are collected, including requirements for training and process changes.

2 Pilot scenarios

Pilot scenarios are applications from STRATEGIC partners that will be used for validation of the created platform. Validation will happen from multiple aspects: a) creation of a completely new application b) adoption of existing one in a different municipality c) enrichment of applications through integration with added value services especially from the security domain.

Selection of the exact pilot applications was done by the scenario partners. Analysis was performed based on questionnaires (attached at the end of the document) and interviews with the scenario owners. Note that applications are separated in two categories; ones that derive from custom development and adapted applications of 3rd party applications (e.g. for OpenData), which will be integrated into a common marketplace. Interview template is provided in Appendix A.

In total, there are 11 pilots use cases planned for execution. Description of the use cases as well as requirements for their operations is covered in the following chapters.

2.1 General scenarios

The entry point into STRATEGIC platform for pilots is STRATEGIC marketplace. The generic scenarios for operating the marketplace (registration, sign-in, billing, etc.) will be covered in the documentation of the marketplace and are outside the scope of this document.

2.2 Pilot-specific scenarios

Three municipalities proposed pilot projects for STRATEGIC; namely:

- Municipality of Camden, London, UK
- City of Genoa, Italy
- Municipality of Stari Grad, Belgrade, Serbia

Each municipality is planning to port some of their existing application to the cloud. In addition, cross-municipality application deployment as well as integration with the horizontal services of Strategic is foreseen. In the following table a summary of the proposed scenarios is provided. Each scenario is described in more details below. For convenience, each scenario is assigned a code following the pattern ("municipality-number").

Scenario	Scenario name	Scenario type
Camden-1	Open data initiative for publishing data on the cloud	Modifying existing application for the cloud infrastructure
Camden-2	Open systems for hosting a publicly available application	Migrating existing application to the cloud infrastructure
Camden-3	Digital identity and authentication	Creating a new application
Genoa-1	Cloud-enabled service	Migrating existing application to

Scenario	Scenario name	Scenario type
	for business activities	the cloud infrastructure
Genoa-2	Cross-border authentication for business activities	Modifying existing application to integrate with other services
Genoa-3	Cross-border issuance of resident certificate	Modifying existing application to integrate with other services
Genoa-4	Open data initiative	Platform configuration
Stari Grad-1	Cloud-enabled certificate issuance service	Migrating existing application to the cloud infrastructure
Stari Grad-2	Cross-border issuance of resident certificate	Modifying existing application to integrate with other services
Stari Grad-3	Cloud-enabled email service	Migrating existing application to the cloud infrastructure
Stari Grad-4	Open data initiative	Modifying existing application to integrate with other services

Table 2 Planned scenarios

2.3 Typical scenario workflows

The analysis of the applications has shown several flows common to all scenarios. These flows are split into 3 categories: (a) creation of a new application from a marketplace, (b) relocating application from one service provider to another and (c) introducing modifications to the existing application to make it available for the others via the marketplace. The latter process is covered in more detail by WP3.

2.3.1 Creation of a new application from a marketplace

In the figure below the sequence diagram of one indicative flow - the creation of new application in the STRATEGIC Platform - is presented.

The two primary roles are in play: a) *administrator* of the municipality – a technical representative of the municipality; b) *developer* – a software developer or integrator of a certain application that is to be reused.

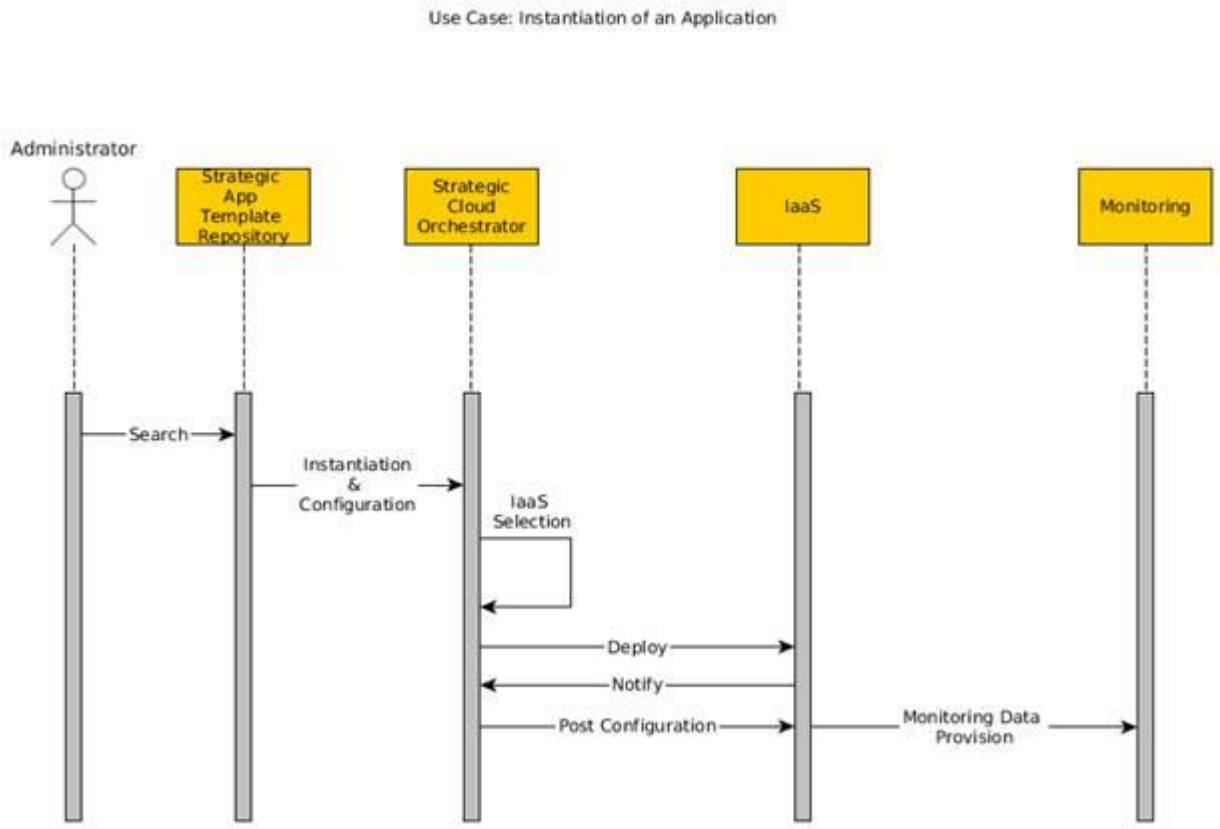

Figure 1: Creating a new application using Strategic platform

Figure 1 depicts how the creation of a new application is executed by the technical administrator of the client by selecting and configuring the application from the STRATEGIC marketplace. The application is then deployed to the matching IaaS service by the STRATEGIC cloud orchestrator. After the deployment, a post-configuration step is executed. During the operational part of the lifecycle, monitoring information is collected from the IaaS.

2.3.2 Migration of an application from one IaaS to another

The second typical scenario is migration of an application from one IaaS to another.

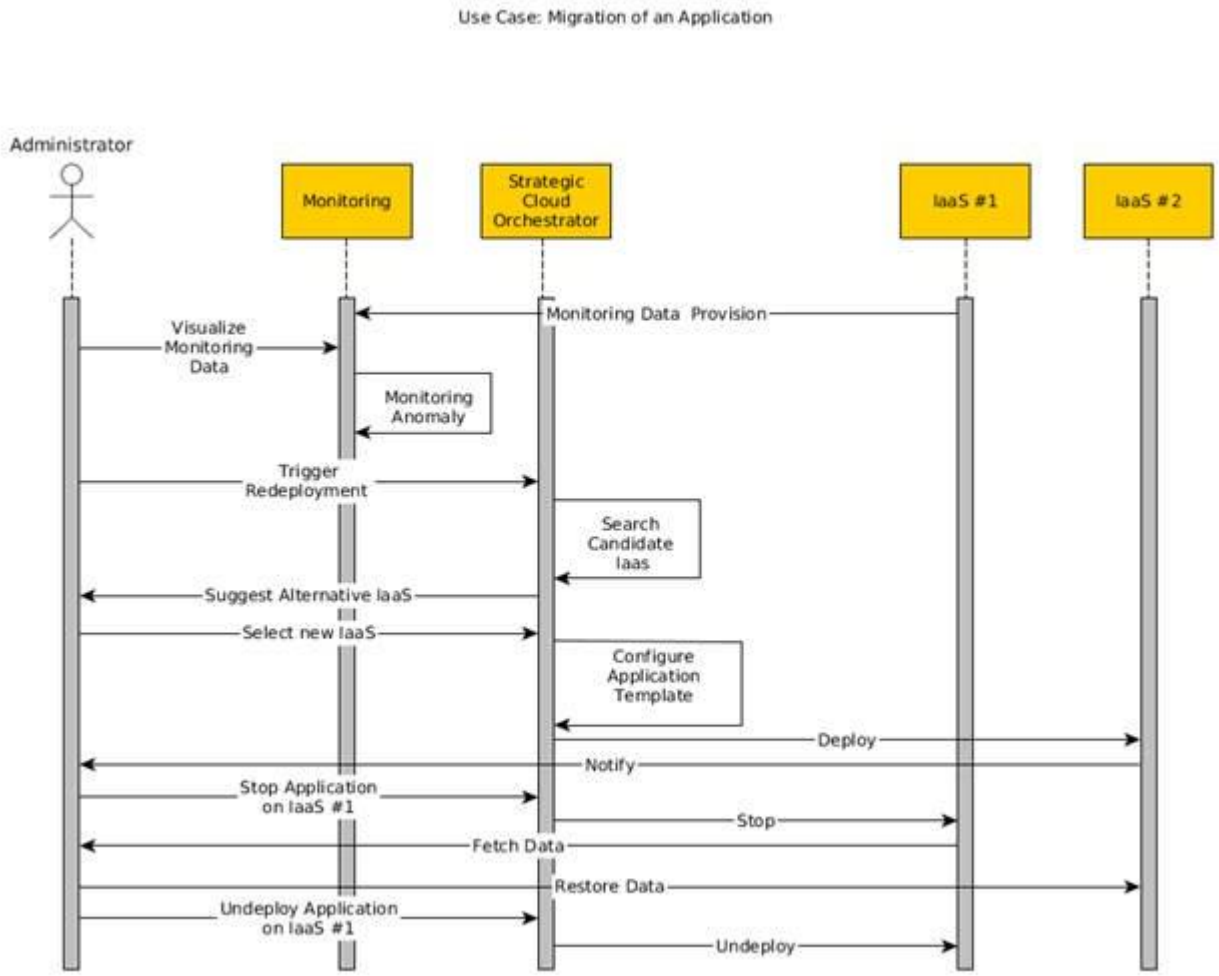

Figure 2: Migrating existing application to a different cloud infrastructure

The decision to migrate an application to a different hosting infrastructure is done on the basis of the monitoring information. In the case an anomaly is detected, the technical administrator can trigger a redeployment action of the cloud orchestrator. In practice it means the selection of a new IaaS provider, deployment and post-configuration of the application. Once this is done, the main application is stopped and the data migration is performed by the administrator. The migration is concluded with the cleanup step of undeploying the application from the initial IaaS provider.

2.3.3 Porting of the application to the marketplace

The third typical scenario is the porting of the application to the marketplace. Time-wise it would happen prior to the first two flows and is done only once for each of the applications.

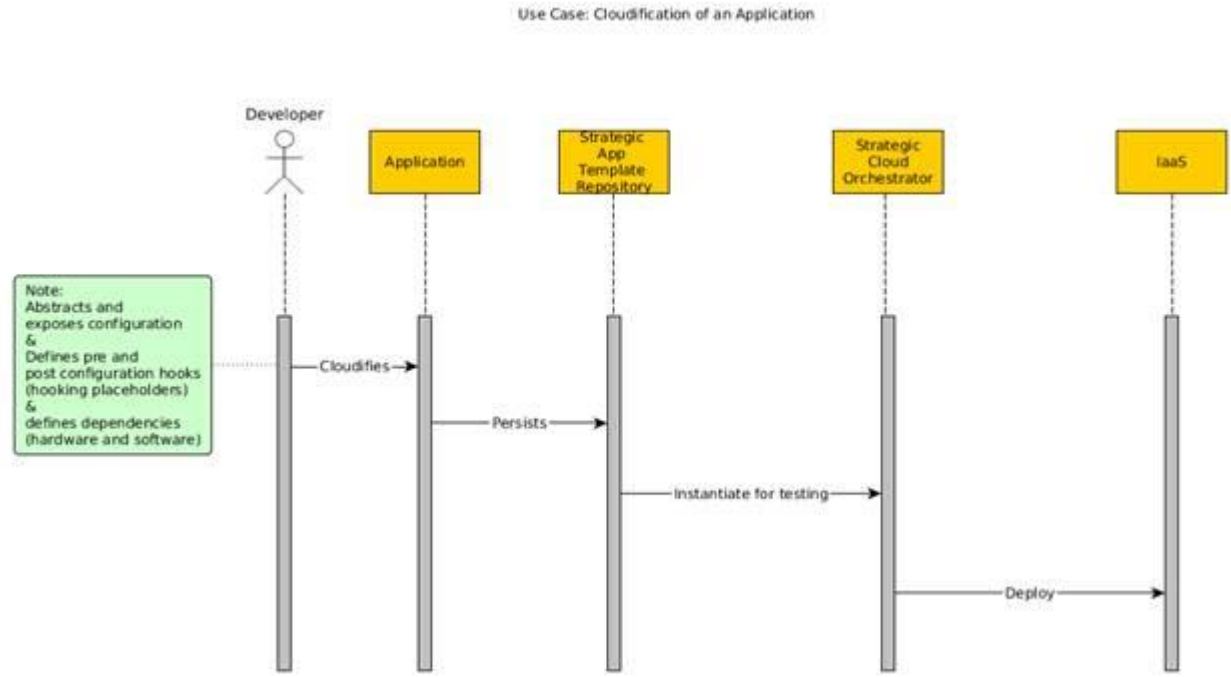

Figure 3 Modifying existing application for the cloud environment

In case of modification of an application, the primary work is the analysis and packaging of the application to support reasonable localization and migration flows. This is done by a developer that splits the application lifecycle into pieces, defining also hooks for the custom client logic. This is then kept in the marketplace for the reuse by other clients. As a last step of the migration, it is verified that the application can be actually deployed.

2.4 Pilot teams

The handling of each of the use cases is impossible without the support from the product owner. In STRATEGIC, the integration of the application will be done by the technical partners (namely ATOS, SILO, BT and NICPB) in a joint effort with the scenario's technical contact. For convenience, we are listing the planned resources as well as the contact persons for each of the planned scenarios.

The pilot team in London Borough of Camden includes:

Scenario	Staff	Technical contact
Camden-1	• 1 technical architect • 1 technical project manager • 10 testers	SudipTrivedi (sudip.trivedi@camden.gov.uk)
Camden-2, Camden-3	• 1 technical project manager • developers • testers	

Table 3 Pilot team in London Borough of Camden

The pilot team in the City of Genoa includes:

Scenario	Staff	Technical contact
Genoa-1	• developers • 10 testers	Paola Castagno (paola.castagno70@gmail.com)
Genoa-2, Genoa-3	• 1 developer • testers	

Table 4 Pilot team in the City of Genoa

Finally, the pilot team in the Municipality of Stari Grad (all scenarios) includes:

Scenario	Staff	Technical contact
All scenarios	• 1 developer • testers	Milan Marković (Milan.Z.Markovic@bancaintesa.rs)

Table 5 Pilot team in the Municipality of Stari Grad

2.5 Pilot use cases

This section gives further details of each of the scenarios, providing a short description of the scenario, an activity diagram for each of the use cases, as well as role-based use case diagrams describing the planned interactions for each of the actors of the system.

2.5.1 Camden's use cases

2.5.1.1 Camden-1: Open data initiative for publishing data on the cloud

The London Borough of Camden provides access to the datasets over the cloud allowing users to be able to use the information as they wish -- via the open government license and supporting Local Government Transparency code. Camden's expectation is to present the data as at least a 4 star Open data deployment (5stardata.info).

Up to two publicly available (published) datasets will be covered with the expectation of extending this following STRATEGIC completion.

Actors

The management of the open data web service requires a set of roles to be defined. They include the cloud operation, as well as Camden's role requirements. Finally, anonymous access is provided for end users. In conclusion the following roles are identified:

- Administrator of the hosting platform – a person with management account on the marketplace and access to STRATEGIC cloud orchestrator.
- Website administrators– application specific privileged role.
- End consumers of open data (unregistered users)

Activity diagram

The use case begins with the platform administrator (website admin) acquiring sufficient computing resources to host the application. This will be followed by the transfer of the existing data portal to the newly acquired public infrastructure resources. The portal itself will then be maintained by the website admin and will initiate the creation of the internal process to enable content management by internal people. The site upon being made public by Camden will be accessible to the public without any access restrictions to the hosted data.

The diagram below shows the planned activity streams for the deployed application.

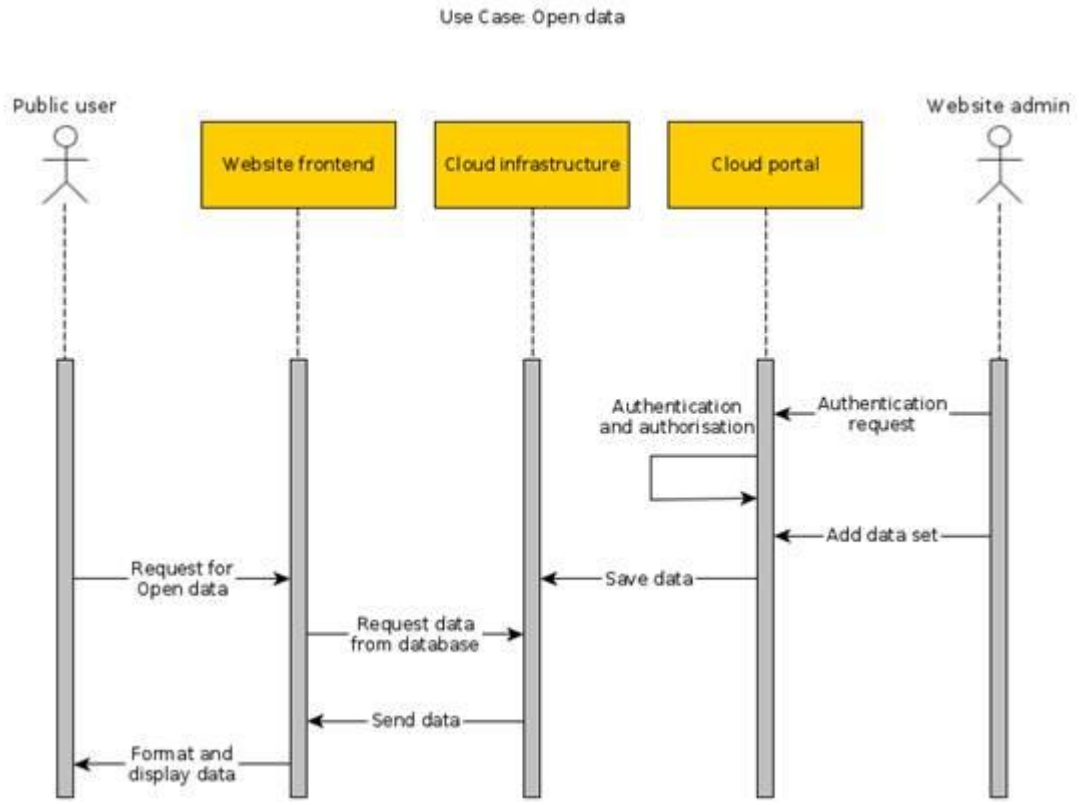

Figure 4: Camden-1 OpenData activity diagram

For the public user, the primary interactions are with Website frontend and database layer behind. Admin user, however, is connecting to the portal in a secure way for modification of the data.

Expected condition after the end of the use-case

- ✓ The website is accessible from public domain.
- ✓ Camden is administering the website.

Related to other scenarios

- ✓ Required for Genoa-4
- ✓ Required for Stari-Grad-4

2.5.1.2 Camden-2: Open systems for hosting a publicly available application

The London Borough of Camden will use STRATEGIC platform to allow a application to be published over the cloud, this includes PSN (www.gov.uk/public-services-network) links and the expectation is to develop a sustainable solution.

Camden's application and its processes and services are used, typically requirements include cluster-based environment that includes VMs for DB, application, file storage. The following applications are currently considered:

- Tranzact.net: Camden's in-house application to process blue badge/freedom pass information and passenger and accessible transport activities (Camden hosts this application for 2 other London councils also).
- Camden's citizen portal (currently used by Leaseholders to view their service charges and manage their interactions with the council online and many more services currently been added) -- www.camden.gov.uk/camdenaccount.
- Another application based on STRATEGIC technology platforms offering and feasibility assessment as part of the project.

Actors

- Administrator of the hosting platform
- Website administrator
- Camden commercial team to enable application resale
- End consumers of the application

Activity diagram

In this use case the sensitivity of the handled data enforces a requirement to have a PSN (Public Service Network) compliance. PSN creates a Virtual Private Network (VPN) for the public sector from commercial infrastructure supported by multiple competing suppliers, and interconnecting over a common Government Conveyance Network (GCN). The primary standout of this use case in comparison to the previous use case is that for PSN compliance requirement.

The activity diagram below showcases the access pattern of users through PSN to applications managed by STRATEGIC.

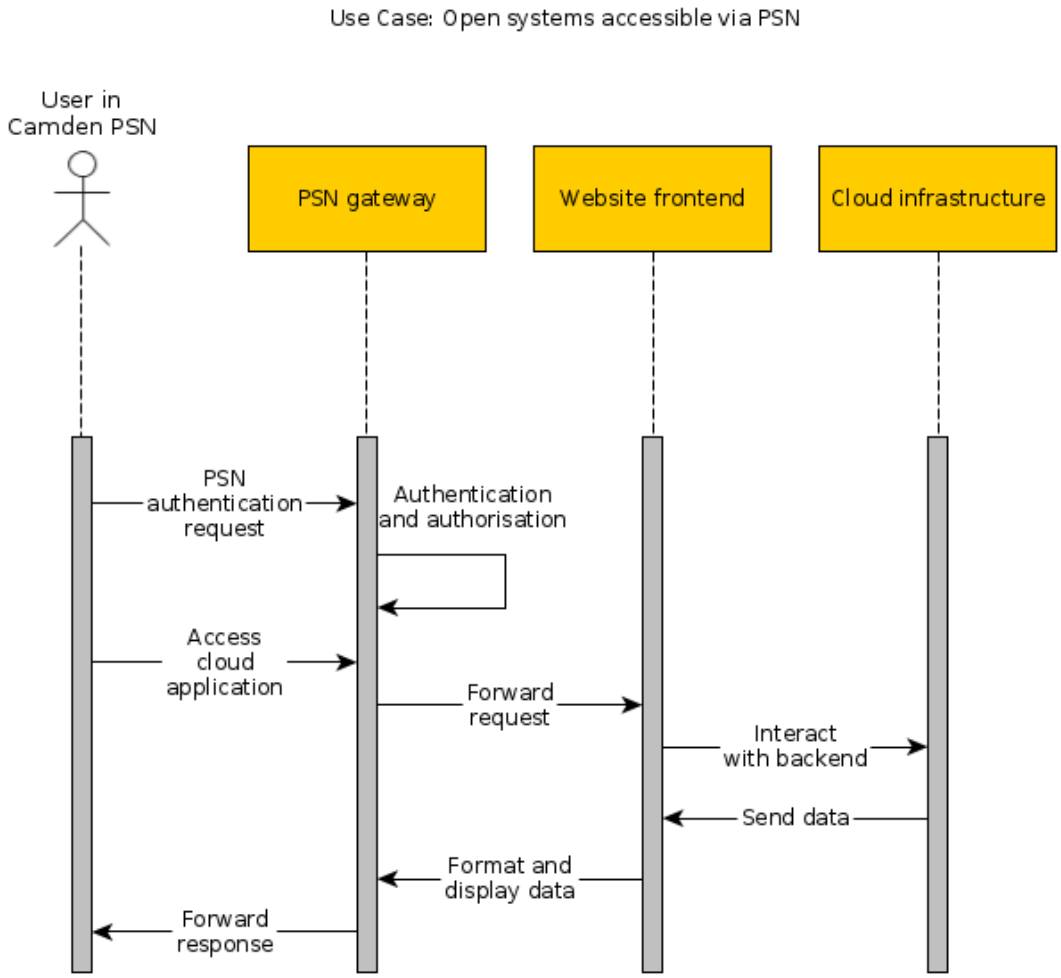

Figure 5: Camden-2 activity diagram

All user requests are going through the PSN Gateway that does the initial authentication. In case of a successful authentication, further requests are forwarded to the PSN-compliant backend system, e.g. website hosted on the cloud infrastructure.

Pre-condition

- UK PSN compliant application host (Cloud).
- PSN connectivity for the application.
- VM x 3 (2 Cores, 4GB RAM)
- 100GB HDD
- Security tools deployed to protect VM and data at rest.

Post-condition

- Website accessible from the PSN network

2.5.1.3 Camden-3: Digital identity and authentication

As part of Camden's Citizen Portal platform there is a requirement for municipality to authenticate citizens electronically. UK doesn't use e-IDs currently and Camden municipality would like to use the STRATEGIC Cloud platform to look

at opportunities for exploring digital identity. They would like to use the IDAP framework from the UK Cabinet office and allow residents to authenticate using any of the existing IdPs. They would also like to explore any cross border authentication use cases which may be relevant to Camden's services (gds.blog.gov.uk/category/id-assurance).

Actors

- Citizens of Camden
- Business owners established in Camden
- Administrators of the Camden portal

Activity diagram

The diagram below showcases the digital identity use case activities.

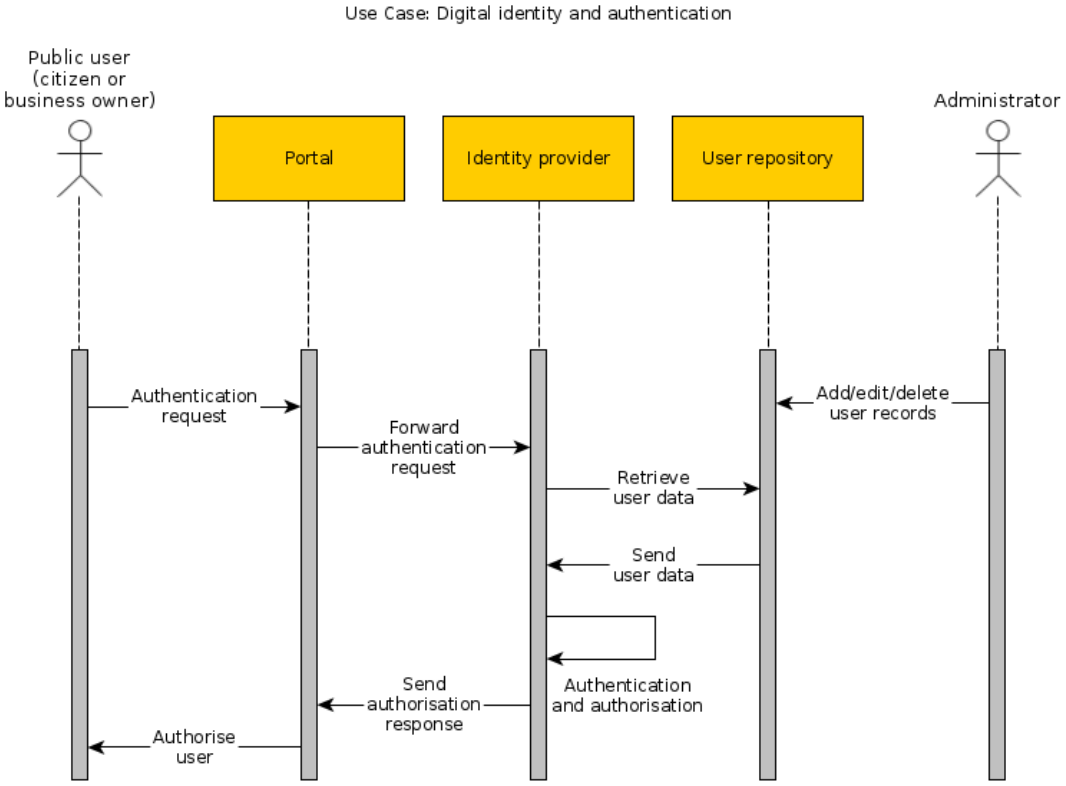

Figure 6: Camden-3 Digital identity and authentication activity diagram

For authentication requests, the public user is going through portal and identity provider. The latter is connected to the User repository managed by Administrator. The exact actor of Administrator can be both manual and automatic.

Pre-condition

- The IDAP scheme needs to be started.
- The IDAP scheme has registered IDPs that citizen can register into
- BT will host the authentication process:
    - Establish a trust relationship between authentication system and IDAP IDPs

- Establish a trust relationship between Camden's website and the authentication page

- Define the scope of the attribute broker functionalities and manage attribute requirements

Post-condition

- Citizens authenticated from the IDAP scheme
- Business owners authenticated from the IDAP scheme

2.5.1.4 Use case diagrams for Camden scenarios

Camden's scenarios contain several types of users. The use cases diagrams for each of groups are depicted below.

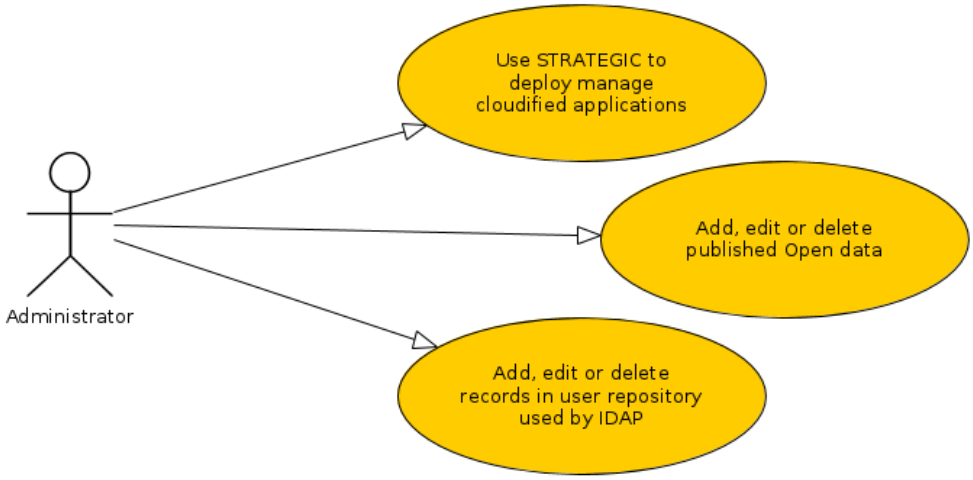

Figure 7: Camden use cases for Administrator

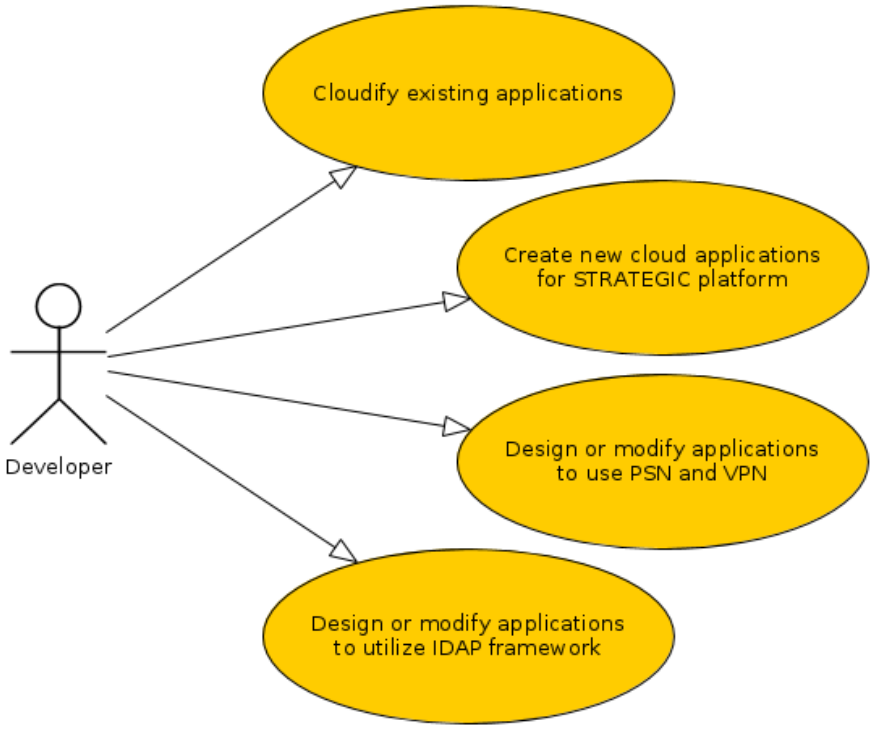

Figure 8: Camden use cases for developers

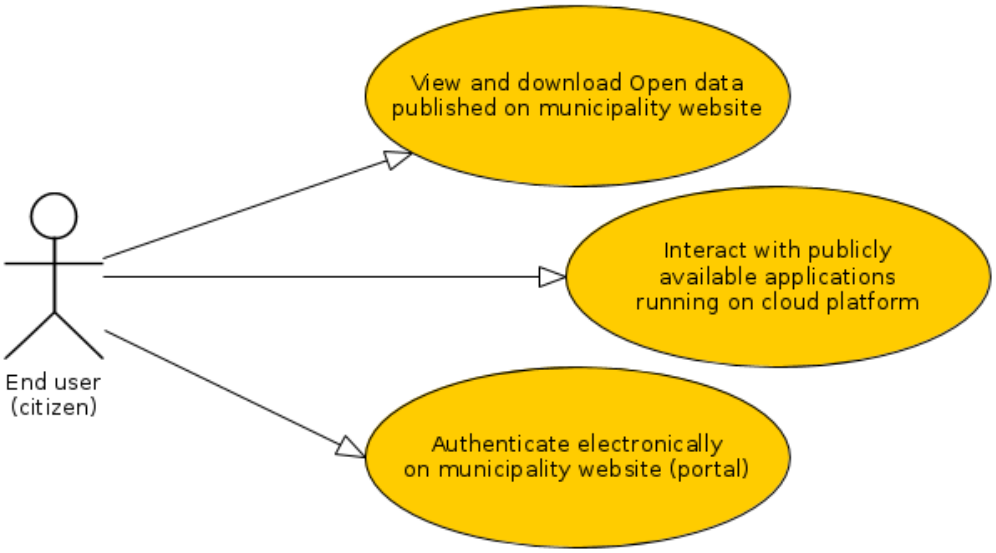

Figure 9: Camden use-cases for the end users

2.5.2 Genoa's use cases

2.5.2.1 Genoa-1: Cloud-enabled service related to business activities

The City of Genoa intends to improve the overall quality and service offer of its existing portal dedicated to business activities of the citizens. The main services offered to users (companies and citizens willing to create a new company) are:

- the on-line management of most of the bureaucracy involved in the process
- the possibility to download documents and certifications they need to keep business running and to accomplish legal and taxation incumbencies
- the visualization of several company information and practices' status.

The core of the platform is the web-portal running the application, connected with the main databases where users' data is stored. Users can authenticate on the portal and ask for data and services. The portal calls other external web-services to start all the bureaucratic procedures connected with the user's activities.

The web portal is a tightly integrated application, it uses several other city web services that are not likely to be placed within the cloud.

Related to other scenarios:

- Required by Genoa-2

2.5.2.2 Genoa-2: Cross-border authentication for business activities

The City of Genoa is going to extend Genoa-1 use case functionalities to Spain citizens by using a STORK-based authentication service. Spanish users will be able to authenticate and open new companies or other business activities directly online, with the less possible bureaucratic impact.

The following activity diagram describes the flow for Strategic components in case of using STORK-enabled application.

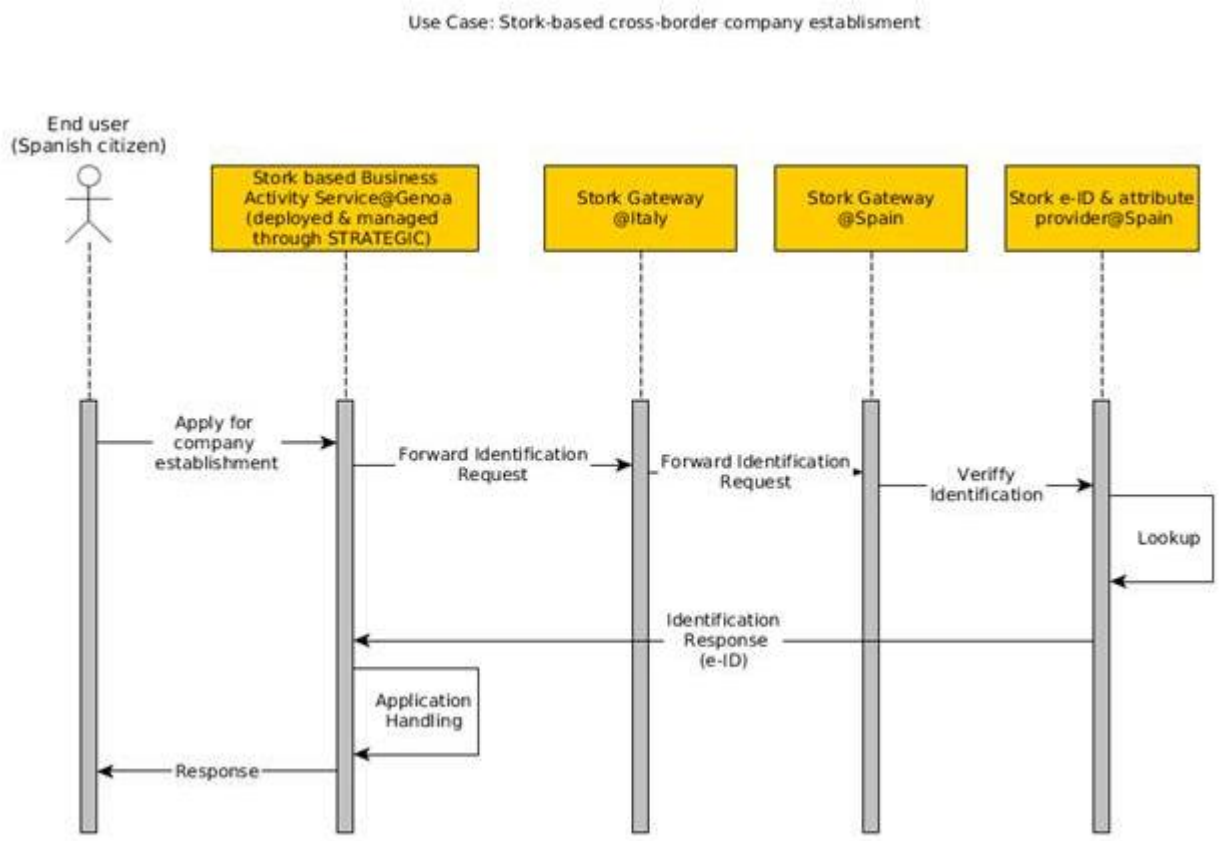

Figure 10: Genoa-2 activity diagram

In this use case, the end-user from Spain wants to establish a company in Genoa. Business-activity application is adapted to integrate with Stork. Authentication is then going through the standard Stork flow.

Related to other scenarios:

- Requires Genoa-1

2.5.2.3 Genoa-3: Cross-border issuance of Certificate of Residence

The City of Genoa in cooperation with the Municipality of Stari Grad commits to share data in a pre-production (testing) environment (with no real users' data) that they use in their services (e.g. a Serbian citizen wishes to work in Genoa and sends his information to Genoa municipality). This service will allow a cross-border certification for residence and exchange of required attributes. In addition, it is possible to add support for policy management.

The diagram below describes the flow in more detail.

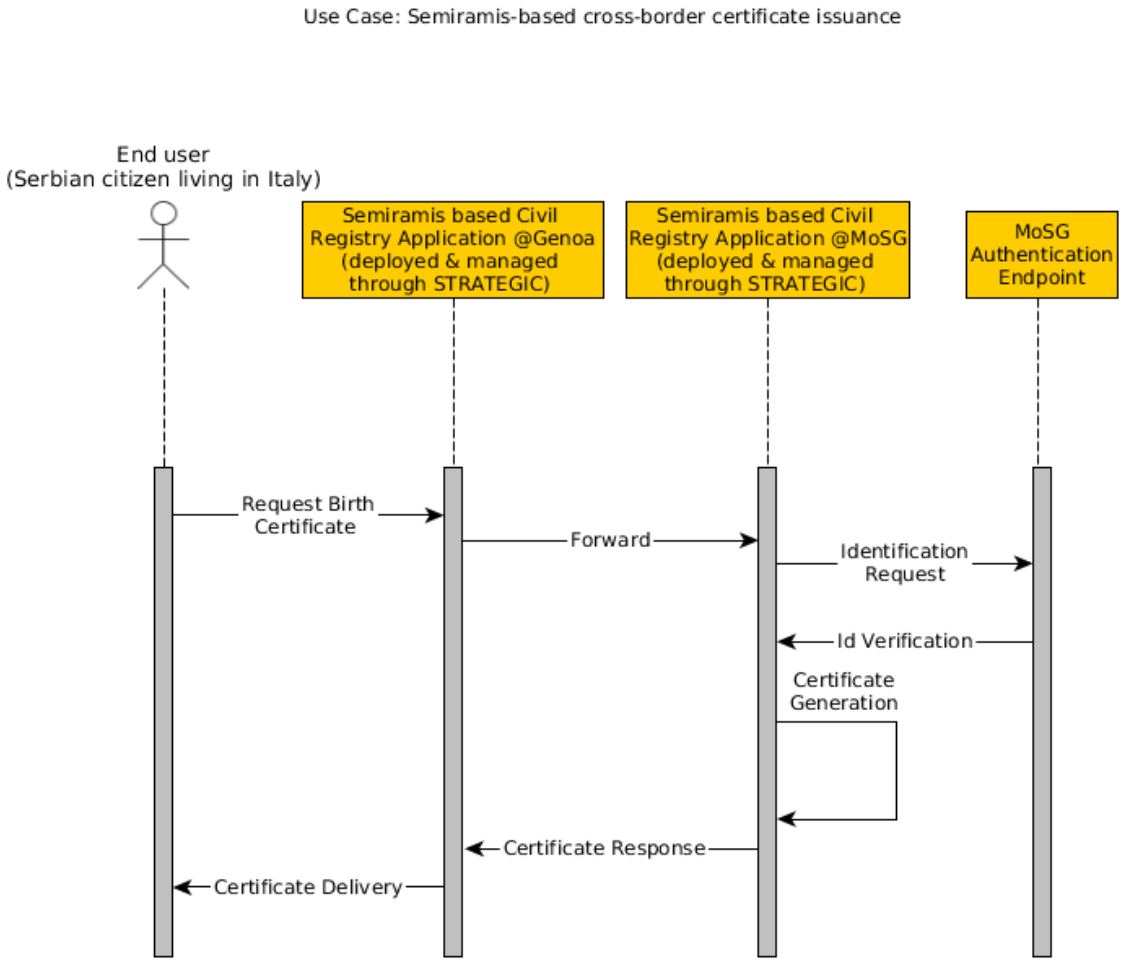

Figure 11: Genoa-3 activity flow diagram

The user is interacting with a portal deployed through STRATEGIC. Semiramis flow is used for forwarding user requests till the MoSG's endpoint for identity verification.

Related to other scenarios:

- Linked with Stari-Grad-2

2.5.2.4 Genoa-4: Open data initiative

The City of Genoa is willing to provide access to datasets over the cloud allowing users to be able to use the information as they wish – via the open government license.

This is mainly a platform configuration project and therefore, details are to be defined as part of the migration process. The activity flow is the same as in Camden-1 pilot use case.

Related to other scenarios:

- Requires Camden-1

2.5.2.5 Use case diagrams for Genoa scenarios

Genoa's scenarios contain several types of users. The use cases diagrams for each of groups are depicted below.

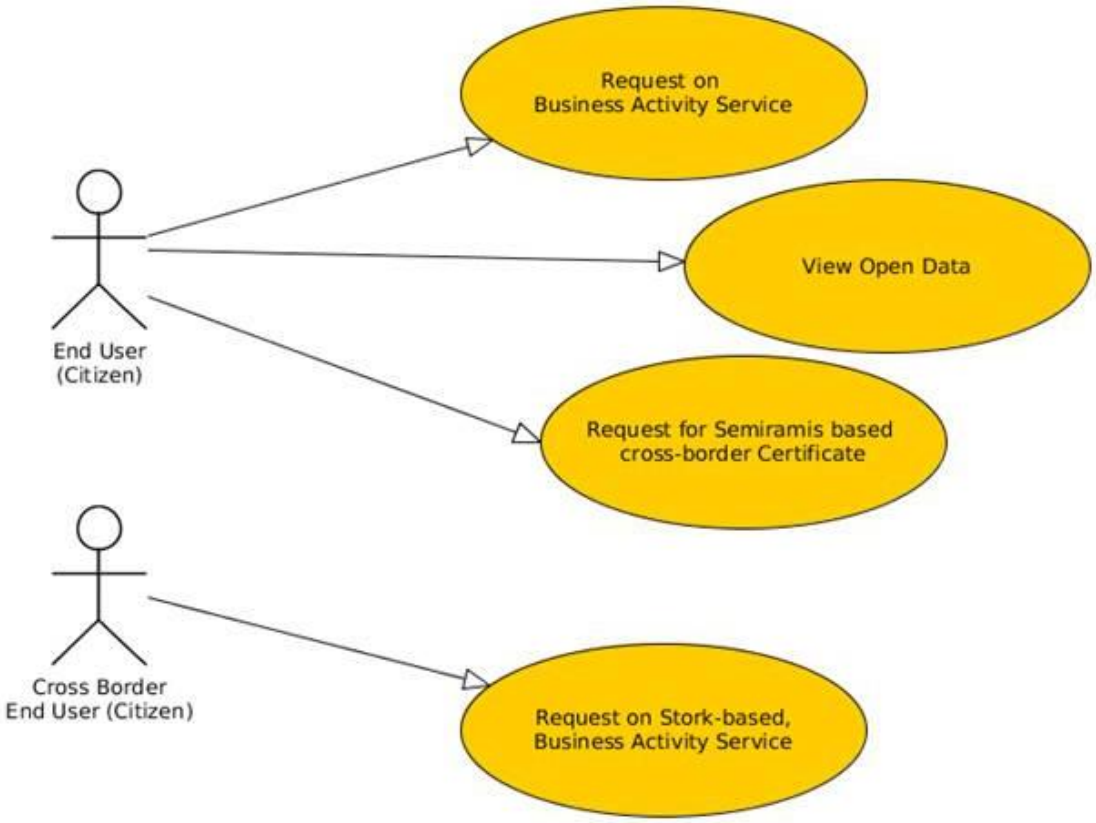

Figure 12: End-user use cases in Genoa scenarios

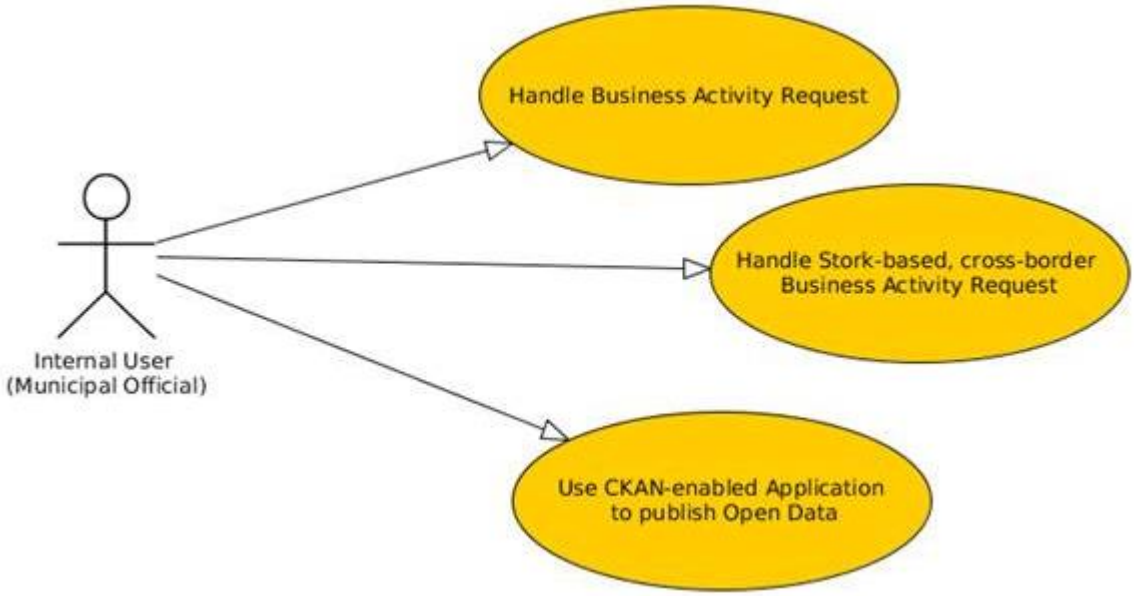

Figure 13: Internal use cases in Genoa scenarios

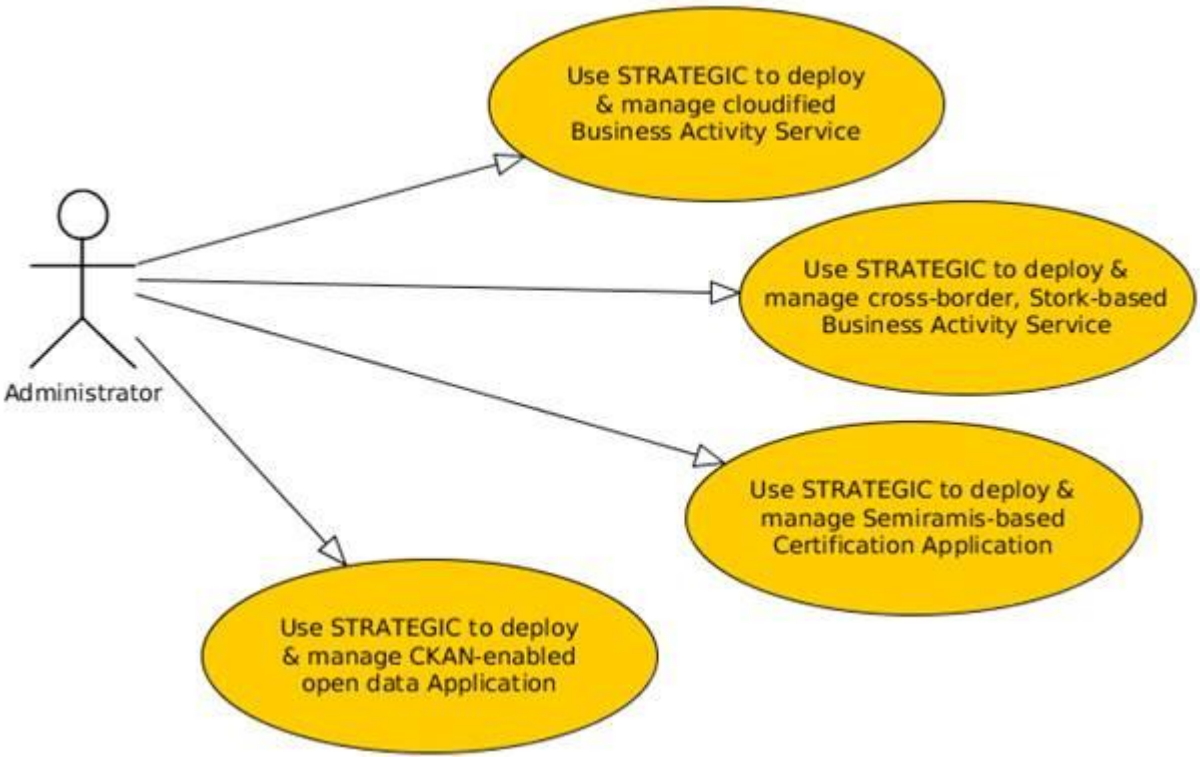

Figure 14: Administrator use cases in Genoa scenarios

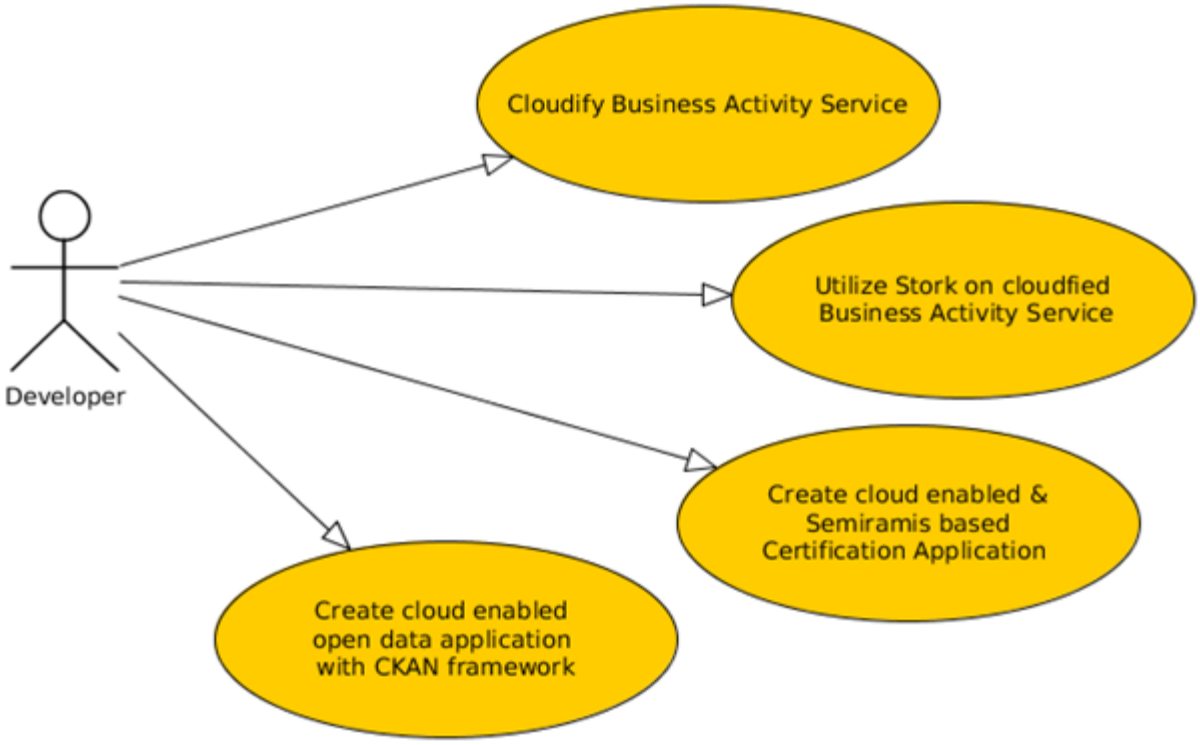

Figure 15: Developer use cases in Genoa scenarios

2.5.3 Stari Grad's use cases

2.5.3.1 Stari-Grad-1: Cloud-enabled certificate issuance service

The Municipality of Stari Grad uses STRATEGIC platform to host the certificate service of web portal www.starigrad.org.rs that is currently hosted in a hosting service. This web portal is used to issue certificates for citizens who are requesting these certificates online by filling the corresponding form on web portal. It is possible to request:

- birth certificates
- marriage certificates
- death certificates
- certificate or residences

The certificate request is processed by the authorized municipality employees who use the centralized database of City of Belgrade via another application to retrieve the needed information. The municipality employee issues the requested certificate for the citizen, prints and sends it.

The certificate is delivered to the citizen's home address.

Related to other scenarios:

- Required for Stari-Grad-2

2.5.3.2 Stari-Grad-2: Cross-border issuance of Certificate of Residence

The municipality of Stari Grad in cooperation with the City of Genoa will share some data that they use in their services (e.g. a Serbian citizen wishes to work in Genoa and sends his information to Genoa municipality).

Stari Grad is willing to integrate their certificate issuance system described in Stari-Grad-1 scenario with corresponding system from Genoa.

Related to other scenarios:

- Linked with Genoa-3
- Requires Stari-Grad-1

2.5.3.3 Stari-Grad-3: Cloud-enabled email service

The Municipality of Stari Grad wishes to deploy its current email server on a cloud infrastructure. The current email server is set up for domain starigrad.org.rs that is used by the municipality employees. The email server is currently hosted at the City of Belgrade.

2.5.3.4 Stari-Grad-4: Open data initiative

Stari Grad is willing to exchange Open data published on their website with Open data published by other municipalities (Camden).

Municipality of Stari Grad's website (www.starigrad.org.rs) is a central place where the most accurate and updated information related to the daily living of its citizens, as well as Open data, are published (e.g information about public procurement -- tenders and requests for proposals, etc.). End users (citizens) access the web site and acquire Open data published on the site -- both data related to the municipality and also data collected from other sources. Authorized internal employees manage the content on the website. The website is currently hosted at the ISP premises.

Related to other scenarios:

- Requires Camden-1

2.5.3.5 Use case diagrams for Stari Grad scenarios

The scenarios of Stari Grad contain several types of users. The use cases diagrams for each of groups are depicted below.

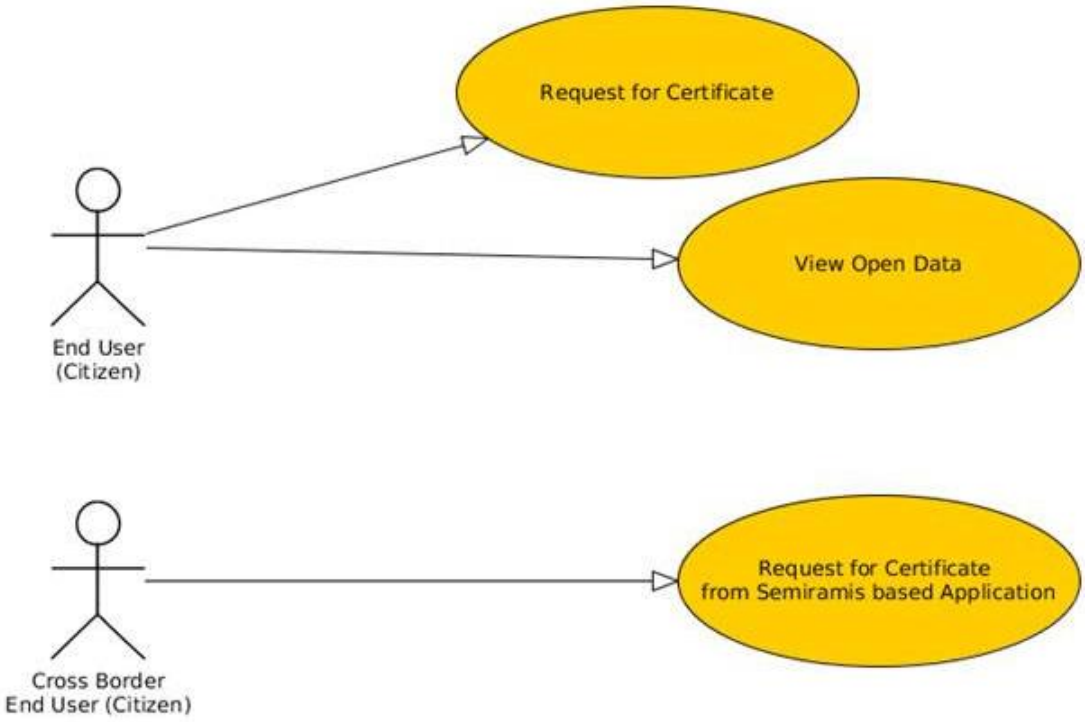

Figure 16: End-user use cases in Stari Grad scenarios

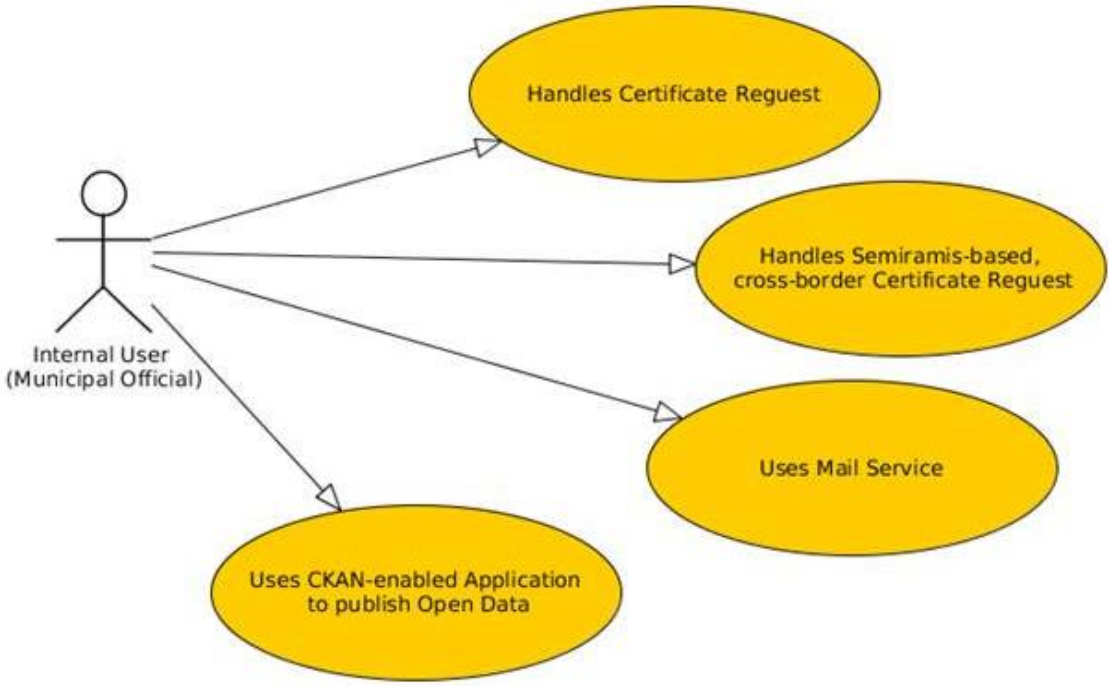

Figure 17: Internal user use cases in Stari Grad scenarios

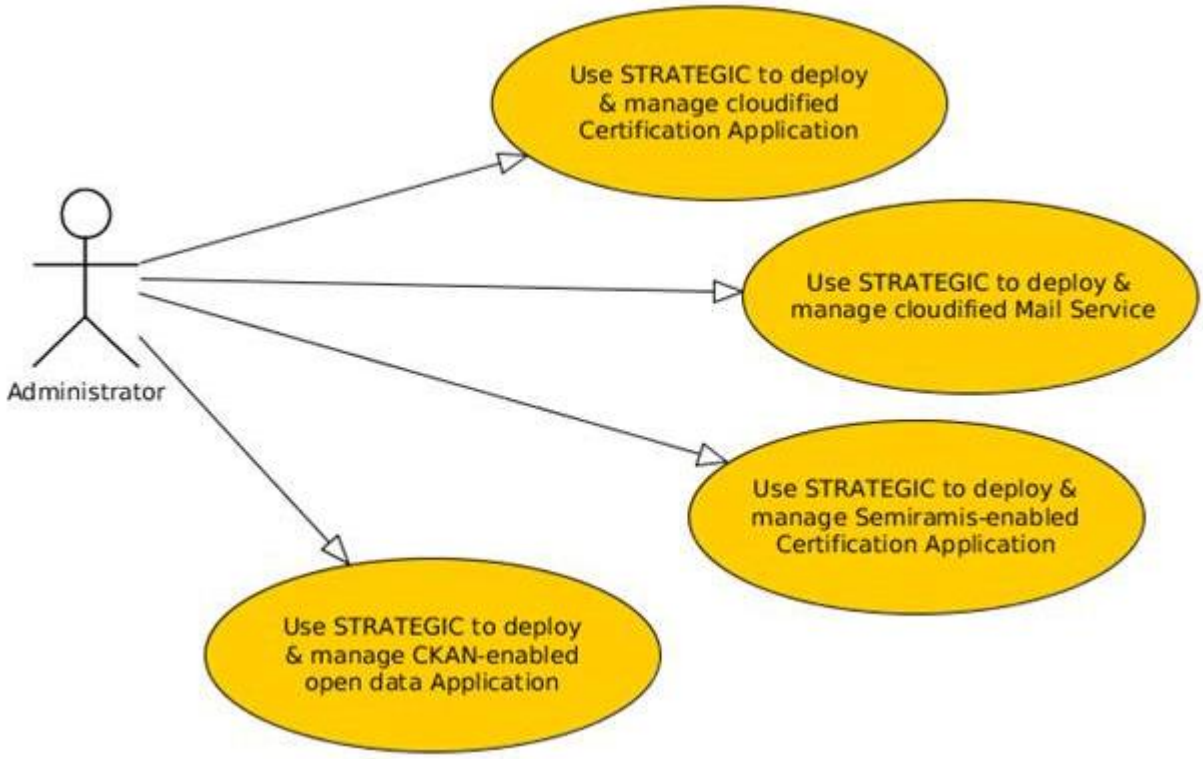

Figure 18: Administrator use cases in Stari Grad scenarios

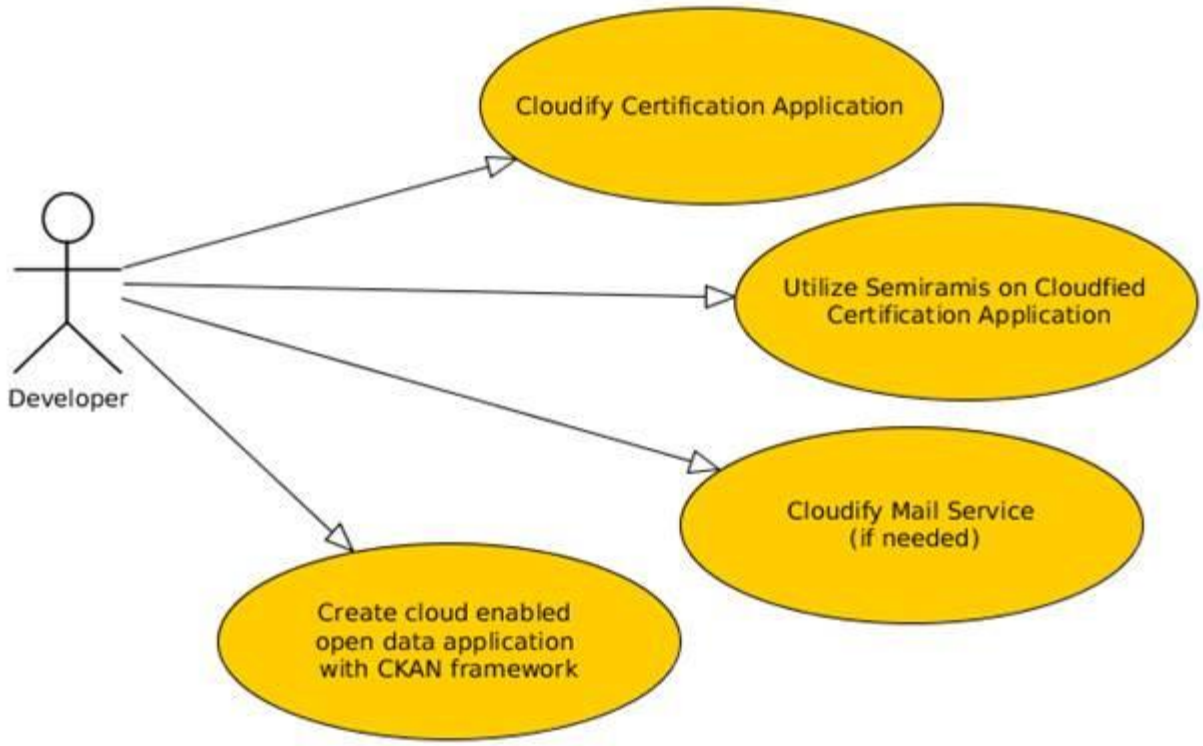

Figure 19: Developer use cases in Stari Grad scenarios

2.5.4 Added value of STRATEGIC platform

For each of the use cases partners have also analysed what benefit would be coming from using the STRATEGIC framework. This analysis is grouped in the table below.

Scenario	Added value aspect
Camden-1	• Ability to protect the computing resources with Cloud based security solutions. • Ability to use and manage public resources effectively from the Strategic platform. • Publishing of the data is secure aware step. STRATEGIC's Security-as-a-Service is planned to be usedto encrypt the communication while publishing data. Encryption is required to assure that the origins of the data could be tracked.
Camden-2	• Ability to scale the service as and when required. • Frees up internal Camden's internal computing resources for further internal innovation. • Ability to publish and resell the application through STRATEGIC platform. • Ability to protect the computing resources with Cloud based security solutions. • Ability to use and mange public resources effectively from the Strategic platform.
Camden-3	• Provides centralised homogenous capability management. • Ability to Scale the portal as the number, size and download rate of datasets increases. • Frees up internal Camden's internal computing resources for further internal innovation. • Dedicated identity software maintenance and management. • Ability to protect the computing resources with Cloud based security solutions. • Ability to use public resources effectively from the Strategic platform.
Genoa-1	• Increased service efficiency • Better control over infrastructure • Unified authorization service • Integration of central authorization service
Genoa-2	• Increased service efficiency • Better control over infrastructure • Unified authorization service
Genoa-3	• Unified authorization service • Integration of unified data exchange mechanism • Offering citizens a secure and privacy aware mechanism of cross-border attributes exchange

Scenario	Added value aspect
Genoa-4	• Efficient strategy & tools for compliance with the Local Government Transparency code. • Easy deployment of an innovative service
Stari Grad-1	• Cutting costs for infrastructure and applications • Increase effectiveness of current services • Getting experience of cloud services' usage
Stari Grad-2	• Cutting costs for infrastructure and applications • Increase effectiveness of current services • Get experience of cloud services' usage
Stari Grad-3	• Cutting costs for infrastructure and applications • Increase effectiveness of current services • Get experience of cloud services' usage
Stari Grad-4	• Cutting costs for infrastructure and applications • Increase effectiveness of current services • Get experience of cloud services' usage

Table 6: Added value aspects provided by STRATEGIC platform

3 Pilot Operations Requirements

This section lists requirements (both technical and non-technical) for pilot project. Requirements for migration and integration projects follow the currently running applications and systems that need to be transferred to STRATEGIC infrastructure. Requirements for new applications and systems are derived from estimates in pilot proposals.

Technical requirements include requirements to the site, which will host the operations of the application. These requirements include data security and network access aspects. Non-technical requirements include user training and process changes.

3.1 Camden-1

The site for hosting open data that provides access to view and download open datasets for end-users (general public).

Requirement	Values
Requirements to operation site	• 4x VM (2-core CPU, 4 GB RAM, Windows Server 2008 R2) • 100 GB disk storage • SharePoint 2010
Requirements for data security	• Security tools to protect VM and data at-rest
Requirements for network access	• Isolated network for VMs + IPSec tunnel into that network • Public IP for services
User training	Not needed
Processes	No changes

3.2 Camden-2

Camden's in-house application (Tranzact.net) that processes blue badge/freedom pass information and passenger and accessible transport activities is the second use case application. This application provides access to sensitive datasets.

Requirement	Values
Requirements to operation site	• 3x VM (2-core CPU, 4 GB RAM, Windows Server 2008R2) • 100 GB disk storage • UK PSN compliant application host/cloud
Requirements for data	• Security tools to protect VM and data at-rest

Requirement	Values
security	
Requirements for network access	No special requirements
User training	Not needed
Processes	No changes

3.3 Camden-3

The IDAP scheme is expected to be started. The IDAP scheme has registered IDPs that citizen can register into.

Users can login to an application hosted in the cloud using their IDAP. The type of users includes:

- Citizens of Camden
- Owners of business established in Camden

Requirement	Values
Requirements to operation site	No special requirements
Requirements for data security	No special requirements
Requirements for network access	• Establish a trust relationship between authentication system and IDAP IDPs • Establish a trust relationship between Camden's website and the authentication page
User training	Not needed
Processes	No changes

3.4 Genoa-1

The current portal is deployed onto the cloud architecture and is accessible from public domain. Their current state is as follows:

- All the current servers are running in VMs
- City NAS and SAN services are used for a total of 130 TB
- Application will use less than 32 GB of storage (estimate)

Requirement	Values
Requirements to operation site	• 3x VM (2 VCPU, 4 GB RAM, CentOS) • 64 GB disk storage • Drupal 7, Java, PHP5, Tomcat 7MySQL
Requirements for data security	No special requirements
Requirements for network access	• Apache v2.2 as reverse proxy • Application should run in the city VPN • 1 GB daily bandwidth (250 daily users)
User training	Not needed
Processes	No changes

3.5 Genoa-2

Requirements are the same as for Genoa-1 pilot. Additionally, the following issues are expected:

- Application will use less than 1 GB disk storage
- Network traffic is minimal (1 daily visitor)

3.6 Genoa-3

The certificate issuance service is installed and running on the cloud infrastructure. Stari Grad and Genoa´s citizens will be able to obtain a valid residence certificate directly online. The issues below are estimated:

- Application will use less than 1 GB disk space
- Network traffic is minimal (1 monthly visitor)

Requirement	Values
Requirements to operation site	• VMs (no details) • Java, PHP 5 • Other tools needed for service integration with Stari Grad service
Requirements for data security	No special requirements
Requirements for network access	No special requirements
User training	Not needed
Processes	No changes

3.7 Genoa-4

The open data publication service is installed and running in the cloud infrastructure.

Requirement	Values
Requirements to operation site	No special requirements
Requirements for data security	No special requirements
Requirements for network access	No special requirements
User training	Not needed
Processes	No changes

3.8 Stari-Grad-1

The certificate issuance service is installed and running in the cloud infrastructure. It is preferred to create a new application rather than porting existing one. Its current state is as follows:

- Certificate issuance service runs on a single server and is available on public network.
- Storage is in the same server, no NAS/SAN solutions used.

Requirement	Values
Requirements to operation site	• 1x VM (Windows Server 2008 R2, Microsoft SQL server) • Licenses are purchased, it is preferred to transfer licenses to new environment.
Requirements for data security	• The service works based on usage of the citizen unique identifier (JMBG) which is a private data. All data about end users (citizens) should remain in Serbia. • Alternatively, signed written consent from end users for data processing in foreign country must be obtained in advance.
Requirements for network access	No special requirements
User training	Not needed
Processes	Need to be changed for cloud infrastructure before migrating from ISP

3.9 Stari-Grad-2

Requirements are the same as for Stari-Grad-1 pilot.

3.10 Stari-Grad-3

The email service is installed and running on the cloud infrastructure and is available over a secure connection. Its current state is as follows:

- Email service (sendmail) runs on a single Linux server and is available in VPN.
- There are 50 users (estimate).
- Storage is in the same server, no NAS/SAN solutions used.

Requirement	Values
Requirements to operation site	• 1xVM (Linux)
Requirements for data security	• Data should remain in Serbia. Alternatively, a signed written consent is required in advance from municipality employees.
Requirements for network access	• Email service should be available over a secure connection.
User training	Not needed
Processes	Need to be changed for cloud infrastructure before migrating from ISP

3.11 Stari-Grad-4

Open data publication service is installed and running on the cloud infrastructure. It is possible either to create a new application or port an existing one. Its current state is as follows:

- Open data publication service runs on a single server and is available on public network.
- Storage is in the same server, no NAS/SAN solutions used.

Requirement	Values
Requirements to operation site	• 1xVM (Windows Server 2008 R2, Microsoft SQL server) • Licenses are purchased, it is preferred to transfer licenses to new environment
Requirements for data security	No special requirements.
Requirements for network	No special requirements.

Requirement	Values
access	
User training	Not needed
Processes	• Need to be changed for cloud infrastructure before migrating from ISP

4 Conclusion

The analysis of the pilot scenarios has given a more clear understanding of the motivation for adopting the STRATEGIC platform. It has also given a deeper understanding as to what types of shared services are actually required and be made available as priority.

Furthermore, the analysis has also highlighted the inter-connections among the different use cases – an important aspect being the potential synergy from interconnection of the use cases.

The analysed use cases will be used for multiple aspects: a) providing the required input for Task 2.4 - Security by Design Specifications so that T2.4 can lay-out the privacy specifications, b) providing a roadmap for guideline creation by WP3; c) providing a planning roadmap for the WP4 and d) providing a validation feedback to Strategic architecture task T2.5.

I. Appendix: Interview template

This appendix includes the interview template provided to the pilot partners in order to collect the information analysed in this document.

❖ Use case name

A short descriptive name of the use case.

❖ Actors

Which roles are involved in the use case, e.g. "administrator", "internal", "guest", etc.

❖ Activity diagram

A diagram of actor and component interaction for this use case.

❖ Pre-condition

What pre-requisites of the system should be in place before the use case can start.

❖ Questions

- Are you porting an existing application, creating a new one or doing both in multiple stages?
- What regulations should the application and use case follow?
- What restrictions apply?
- What is expected number of users?
- Do you need to adopt current process for cloud? If so, what are process changes?
- Are you using licensed software? If so, are you planning to transfer licenses or get new ones?
- Do you have any additional resource requirements (CPU, memory, storage, network)?
- What is expected maximum cost of the solution?
- Do you have any additional requirements not covered by the questions above?

❖ Post-condition

Expected condition after the end of the use-case. E.g. "application is installed with users configured".

❖ Connected use cases

If there are any connected use cases.

❖ Other info

- What is expected benefit from cloudifying the use case?
- What is expected benefit from STRATEGIC for this use case?
- Please provide a technical contact within your organization so we could get additional technical info if needed.