



Service Instance Locator

Business Scenarios

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Draft for comment

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Document information

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1 Introduction

1.1 Background

These Business Scenarios for the Service Instance Locator (SIL) project have been produced to assist in the development and specification of the requirements of a Service Instance Locator solution that will meet the needs of the national e-health infrastructure.

The scenarios rely on knowledge of the possible technical communications arrangements that can be facilitated by the Web Services Technical Architecture [WSTA2008], namely:

1. Direct communication between healthcare organisations
2. The use of notification stores to inform recipients of clinical content that they can fetch this content from a location nominated by the creator of the content
3. The use of a store containing encrypted clinical content to be collected by a healthcare organisation.
4. Some combination of (2) and (3) above.

1.2 Purpose

These business scenarios are used to describe potential events and interactions that may occur with the SIL. Scenarios are intended to aid an understanding how the entities within the community interact with 'real-life' situations, but are not intended to be representative of how healthcare is delivered in all specific organisations that participate in the community.

The purpose of this document is to broadly describe some potential interactions between the participants in the SIL Community and the SIL Services. This document will assist in providing an understanding of the expected operations of the SIL Services. It will also be used to assist in the development of business processes and requirements associated with the SIL Service.

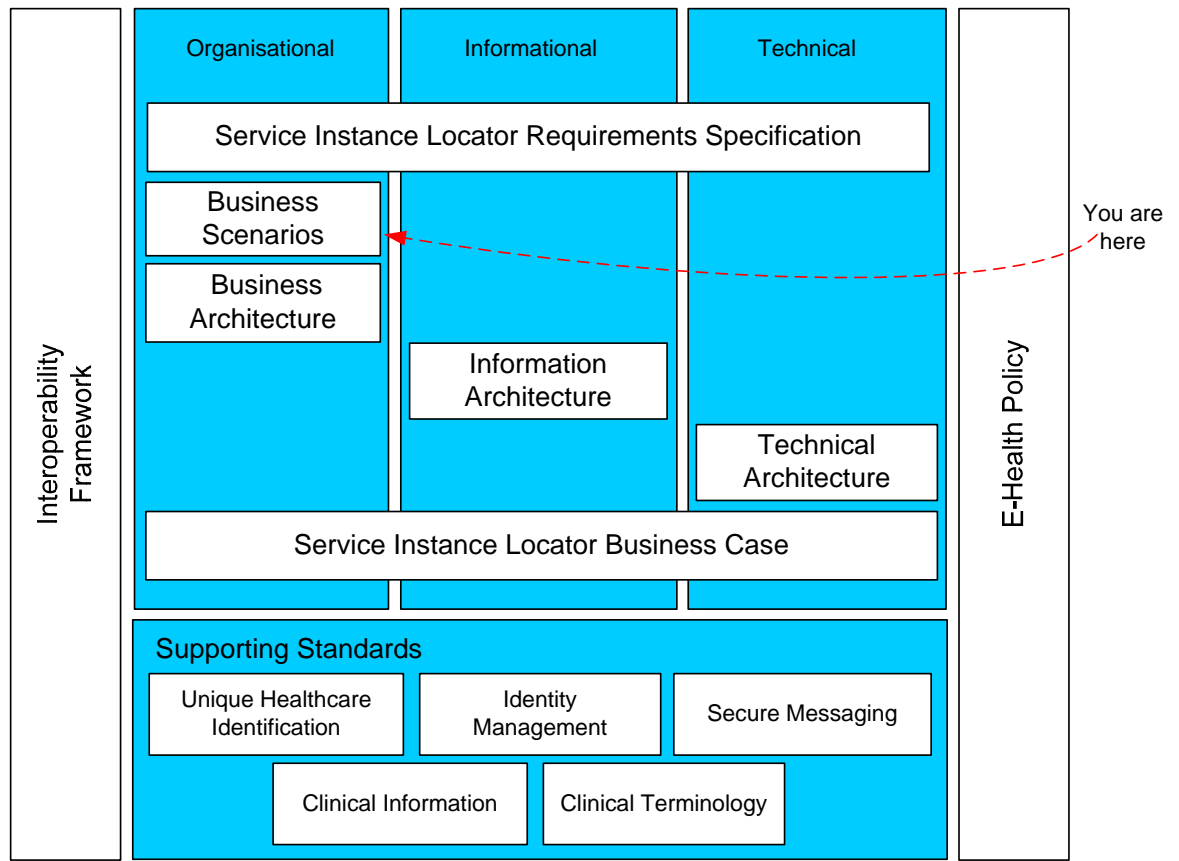
It is not the intention of this document to specify every possible scenario of the SIL Service.

1.3 Status

This document is a draft and has been released for comment and feedback purposes.

1.4 Document Map

This diagram represents the relationship between this document and other related specifications.



1.5 Acronyms and Terminology

BSIR	Business Service Instance Record. The information about a service offered by an organisation, including which technical realisations are available for use by clients of the service.
Endpoint	A URL giving the physical network address at which a binding can be made to invoke a specific Web service instance.
SIL	Service Instance Locator
TSIR	Technical Service Instance Record. The information about a particular Web service endpoint needed to invoke that service.

2 Business Scenarios

The following section outlines the primary scenarios involving the Service Instance Locator (SIL) which will occur in the e-Health Services Community. It also outlines the actions which can be performed and the service interfaces required for the interactions identified in the scenarios.

The scenarios focus on the interaction between the SIL Service and Service Providers and Service Consumers. Interactions with third party service providers such as Authentication or Identification will be noted but not described in detail.

2.1 Overview

The scenarios in this document relate to a hospital which hosts the following Business Services:

1. A Discharge Summary Acknowledgments Receiving Service.
2. A Pathology Result Receiving Service.
3. A Medications Management Confirmation Receiving Service.

The Business Services are realised as a set of Technical Services in the following configurations, (numbering correspond to the list above):

1. This business service is available via a direct invocation on a web service hosted by the hospital.
2. This business service is available via a notify-and-collect interaction, meaning that a web services interface to a Notification Store is available at which notifications for Pathology Reports available to the Hospital can be posted by web services invocations. The Hospital will collect these reports from their source via another web services invocation at a later time. The Notification Store web service is hosted by a company called Notifications Central which receives Pathology Report Notifications on behalf of the hospital.
3. This business service is hosted on behalf of the Hospital by an Encrypted Store web service which accepts deliveries of encrypted confirmation notices for collected prescriptions. The Encrypted Store web service is hosted by the State Government Computer Centre, which delivers the confirmation notices to the hospital via a legacy mechanism.

Each of the organisations mentioned above (the hospital, Notifications Central and State Government Computer Centre) will have a logically separate Service Instance Locator into which they will publish Business Service Instance Records, or Technical Service Instance Records, as appropriate (this will be made clear in the scenarios below).

The principle for what is published by whom is:

An organisation which offers a Business Service, regardless of what Technical Services, hosted by which parties, implement this Business Service, will publish a Business Service Instance Record to its SIL.

An organisation which hosts a Technical Service, regardless of which Business Services the Technical Service realises, and on whose behalf, will publish a Technical Service Instance Record to its SIL.

This principle allows senders of clinical data to discover all the endpoints they require by contacting the Service Instance Locator of the recipient of the clinical data, which contains references from its Business Service Instance Records to the Technical Service Instance Records which contain the actual

web services endpoints which will need to be invoked by the sender of the clinical data.

2.2 Business Service Instance Publication

A healthcare organisation wishes to inform other organisation which Business Services it has available via web services, and via which communications mechanisms these services can be used. For more information on the possible patterns of communication, see the Concepts and Patterns for Implementing Services [CPIS2008].

2.2.1 Publish Discharge Summary Acknowledgments Receiving Service Details

2.2.1.1 Interaction Details

In this scenario a hospital has a discharge summary acknowledgements receiving business service available. This business service is realised via a web service hosted by the hospital which allows acknowledgements to be pushed directly to it.

A Technical Service Instance Record, containing the type and endpoint of the *direct put* interface must be published to the Hospital's SIL.

Enough information to locate this Technical Service Instance Record must be published in the Business Service Instance Record, including:

- which organisation hosts the service (in this case the Hospital itself)
- where the SIL that will contain the Technical Service Instance Record containing the endpoint of the service is located (in this case it is the Hospital's SIL)
- what the WSDL type of the technical service is

2.2.1.2 Participating Roles

Service Publisher (played by Hospital Systems Administrator)

Service Instance Locator (played by Hospital's SIL product)

2.2.1.3 Actions Performed

1. Service Publisher (TSIR): Create Technical Service Instance Record
Publish Technical Service Instance Record to SIL
Service Instance Locator: Store Technical Service Instance Record
Send Confirmation Response
2. Service Publisher (BSIR): Create Business Service Instance Record
Publish Business Service Instance Record to SIL
Service Instance Locator: Store Business Service Instance Record
Send Confirmation Response

2.2.1.4 Interfaces Required

Service Instance Locator: Publish Business Service Instance Record,
Publish Technical Service Instance Record

2.2.2 Publish Pathology Result Receiving Service Details

2.2.2.1 Interaction Details

In this scenario a Hospital has a pathology report receiving business service available. This business service is realised via a notify-and-collect interaction, meaning that a technical interface to a Notification Store is available at which notifications for Pathology Reports available to the Hospital can be posted by web services invocations. The Hospital will collect these reports from their source via another technical invocation at a later time. The Notification Store web service is hosted by a company called Notifications Central which receives Pathology Report Notifications on behalf of the hospital.

A Technical Service Instance Record, containing the type and endpoint of the *notification store* interface must be published to Notification Central's SIL.

Enough information must be available to Pathology companies in a Business Service Instance Record published by the hospital to locate the Technical Service Instance Record containing the endpoint that they need:

- which organisation hosts the Notification Store service (in this case it is Notification Central)
- where the SIL that contains the endpoint of the service is located (in this case it is the Notification Central's SIL)
- what the WSDL type of the technical service is

2.2.2.2 Participating Roles

Business Service Publisher (played by Hospital Systems Administrator)

Technical Service Publisher (played by Notification Central's Notification Store)

Service Instance Locator for hospital's business services (played by Hospital's SIL product)

Service Instance Locator for notification store's technical services (played by Notification Central's SIL product)

2.2.2.3 Actions Performed

1. Technical Service Publisher:

Create Technical Service Instance Record

Publish Technical Service Instance Record to SIL

Service Instance Locator for Notification Central:

Store Technical Service Instance Record

Send Confirmation Response

2. Business Service Publisher:

Create Business Service Instance Record

Publish Business Service Instance Record to SIL

Service Instance Locator for Hospital:

Store Business Service Instance Record

Send Confirmation Response

2.2.2.4 Interfaces Required

Service Instance Locator: Publish Business Service Instance Record,
Publish Technical Service Instance Record

2.2.3 Publish Medications Management Confirmation Service Details

2.2.3.1 Interaction Details

In this scenario a Hospital has a medications management confirmation receiving business service available. This business service is realised via an Encrypted Store web service which accepts deliveries of encrypted confirmation notices for collected prescriptions. The Encrypted Store web service is hosted by the State Government Computer Centre, which delivers the confirmation notices to the hospital via a legacy mechanism.

A Technical Service Instance Record, containing the type and endpoint of the *encrypted store* interface must be published to the State Government Computer Centre's SIL.

Enough information must be available to confirmation senders in the Business Service Instance Record in the hospital's SIL to locate the technical service that they need:

- which organisation hosts the Encrypted Store service (in this case it is the State Government Computer Centre)
- where the SIL that contains the endpoint of the service is located (in this case it is the State Government Computer Centre SIL)
- what the WSDL type of the technical service is

2.2.3.2 Participating Roles

Business Service Publisher (played by Hospital Systems Administrator)

Encrypted Store Technical Service Publisher (played by the State Government Computer Centre Encrypted Store)

Service Instance Locator for hospital's business services (played by Hospital's SIL product)

Service Instance Locator for encrypted store's technical services (played by the State Government Computer Centre SIL product)

Service Instance Locator for hospital's technical services (played by the Hospital's SIL product)

2.2.3.3 Actions Performed

Business Service Publisher:

Create Business Service Instance Record Update

Publish Business Service Instance Record Update to SIL

Service Instance Locator:

Update Business Service Instance Record

Send Confirmation Response

2.2.3.4 Interfaces Required

Service Instance Locator: Publish Business Service Instance Record,
Publish Technical Service Instance Record

2.2.4 Change the Technical Realisation of Medications Management Business Service

2.2.4.1 Interaction Details

The Hospital installs a new application that deals with incoming Medications Management Confirmations. It decides that it will now host a web service that receives confirmations directly from their originators, and needs to update the

Business Service Instance Record that currently directs senders of confirmations to an Encrypted Store hosted on its behalf. The Hospital creates appropriate new fields for its Business Service Instance Record describing the new direct connection interface endpoint, and calls appropriate update operations on the SIL to insert these, and delete references to the old Encrypted Store.

The Hospital will create a new Technical Service Instance Record that allows senders of confirmations to find the new direct put service endpoint.

The previous host of the Encrypted Store will remove the Technical Service Instance Record relating to the service it used to provide for the hospital.

Business Service Consumers will now find the updated details of this Business Service Instance Record within the Service Instance Locator, and this record will direct them to a Technical Service Instance Record which contains the endpoint for communication to the technical service.

2.2.4.2 Participating Roles

Business Service Publisher (played by Hospital System Administrator)

Direct Put Technical Service Publisher (played by Hospital's Medication Management Application)

Service Instance Locator for hospital's business services (played by Hospital's SIL product)

Service Instance Locator for encrypted store's technical services (played by the State Government Computer Centre SIL product)

2.2.4.3 Actions Performed

1. Business Service Publisher:

Update Details of Business Service Instance Record

Service Instance Locator:

Store Update(s)

Send Update Response(s)

1. Direct Put Technical Service Publisher:

Create Technical Service Instance Record

Publish Technical Service Instance Record to SIL

Service Instance Locator:

Store Technical Service Instance Record

Send Confirmation Response

2. Encrypted Store Technical Service Publisher:

Delete Technical Service Instance Record from SIL

Service Instance Locator:

Delete Technical Service Instance Record

Send Confirmation Response

2.2.4.4 Interfaces Required

Service Instance Locator: Update Business Service Instance Record,
Publish Technical Service Instance Record,
Delete Technical Service Instance Record

2.2.5 Delete Business Service Instance Record

The Hospital decides to reorganise its pathology ordering and results receiving business processes, and delegate this function to its independently identified departments. Each department has its own SIL (all still hosted centrally by a single implementation, but with Business Services listed in each logical sub-organisation's SIL), and those which order pathology results will list a Business Service for this purpose separately. In this scenario we examine only the actions of the Hospital, as represented by an organisational identifier, and a logically separate SIL.

2.2.5.1 Interaction Details

The Hospital makes a request to the SIL to delete the Business Service Instance Record for its Pathology Report Receiving business service. The SIL receives the request, deletes the record and informs the Hospital of the successful removal of the Business Service Instance Record from the SIL.

Business Service users will no longer be able to locate this Business Service Instance via the Hospital's Service Instance Locator. As the process for ordering pathology tests has changed, the pathology labs will have different identifiers for each hospital department, and now look at the SILs for each department to locate their Business Services.

2.2.5.2 Participating Roles

Business Service Publisher (played by Hospital)

Service Instance Locator

2.2.5.3 Actions Performed

Endpoint Publisher: invoke Delete Business Service Instance Record operation

Service Instance Locator: Remove Business Service Instance Record
Send Delete Instance Record response to operation

2.2.5.4 Interfaces Required

Service Instance Locator: Delete Business Service Instance Record

2.3 Technical Service Instance Publication

A healthcare provider organisation (or service provider acting on behalf of a healthcare provider organisation) hosts technical services whose details and endpoints must be published into the organisation's Service Instance Locator. This allows web services clients, who know what technical service they need, to discover the service based on its technical type (WSDL interface), and the identifier of the organisation on whose behalf the service is running. In addition they need to know which public key certificate issued to that identity must be used to communicate with the web service that it hosts.

2.3.1 Publish Technical Service Instance Record

2.3.1.1 Interaction Details

The State Government Computer Centre hosts a store of encrypted confirmation notices for collected prescriptions issued by the Hospital. The Computer Centre must publish a Technical Service Instance Record containing the hospital's identity (organisational identifier), the WSDL type of the interface to the store, and the endpoint for the service, as well as some metadata.

2.3.1.2 Participating Roles

Technical Service Instance Record Publisher (played by State Government Computer Centre)

Service Instance Locator (played by State Government Computer Centre's SIL software)

2.3.1.3 Actions Performed

Technical Service Instance Record Publisher:

- Create Technical Service Instance Record

- invoke Publish Technical Service Instance Records operation

Service Instance Locator:

- Store Technical Service Instance Record

- Send Confirmation response to operation

2.3.1.4 Interfaces Required

Service Instance Locator: Publish Technical Service Instance Record

2.3.2 Update Technical Service Instance Record

2.3.2.1 Interaction Details

The State Government Computer Centre hosts a store of encrypted confirmation notices for collected prescriptions issued by the Hospital. The Computer Centre has just restarted the sever on which this service is hosted, and it now has a new endpoint. This endpoint is updated in the existing Technical Service Instance Record.

2.3.2.2 Participating Roles

Technical Service Instance Record Publisher (played by State Government Computer Centre)

Service Instance Locator (played by State Government Computer Centre's SIL software)

2.3.2.3 Actions Performed

Technical Service Instance Record Publisher:

- invoke Update Technical Service Instance Records operation

Service Instance Locator:

- Store update to Technical Service Instance Record

- Send Confirmation response to operation

2.3.2.4 Interfaces Required

Service Instance Locator: Update Technical Service Instance Record

2.3.3 Delete Technical Service Instance Record

An organisation which offers a technical service endpoint that it is has listed within the Service Instance Locator (SIL) should delete the Technical Service Instance Record that represents this listing when the service ceases operating.

2.3.3.1 Interaction Details

The Hospital makes a request to the SIL to delete a specific Technical Service Instance Record. The SIL receives the request, deletes the record and informs

the Hospital of the successful removal of the Technical Service Instance Record from the SIL.

Technical Service users will no longer be able to locate this Technical Service Instance via the Hospital's Service Instance Locator.

2.3.3.2 Participating Roles

Technical Service Instance Record Publisher (played by Hospital)

Service Instance Locator (hosted by, or on behalf of the Hospital)

2.3.3.3 Actions Performed

Technical Service Endpoint Publisher:

invoke Delete Technical Service Instance Record operation

Service Instance Locator:

Remove Business Service Instance Record

Send Delete Technical Service Instance Record response to operation

2.3.3.4 Interfaces Required

Service Instance Locator: Delete Technical Service Instance Record

2.4 Service Instance Discovery

The originator of some clinical information which can be transmitted via web services will sometimes have an ongoing business relationship with the intended recipient of the information, and sometimes the recipient will be unknown to the originator. In the former case, the originator may have an agreement with the recipient as to their mutually preferred technical means of transferring the information (for example, via an agreed encrypted document store, hosted by a known third party), and the main purpose of querying the SIL is to locate the most up-to-date endpoint for this technical service. In the latter case, the originator may be unaware of which of the available technical interfaces the recipient supports, or the identities and locations of third parties that may host the technical services on the recipient's behalf.

In the following sub-sections, we again use the example of the hospital hosting a number of business services in various ways, as explained in section 2.1. We start with the case in which nothing is known about the recipient of clinical information by the originator of that information.

2.4.1 Discover Technical Services realising a Business Service

2.4.1.1 Interaction Details

A specialist pathology lab, Path Oz, has results from referrals from the Hospital introduced in Section 2.1. The lab has obtained the endpoint for the Hospital's SIL from its web page. Its results communication software now queries the SIL to discover what technical services the hospital uses to accept pathology results.

Path Oz's results communication software is capable using three technical realisations of the "Pathology Results Receiving" business service:

1. Direct sending of results using an interface hosted by the receiver of the result.
2. Placing of a notification to a store used by the receiver to inform it of results that it must get from the sender. The results communication software has advertised a technical service in Path Oz's SIL that will accept web services invocations to get pathology results.

3. Placing of a pathology result, encrypted for the recipient, into an encrypted store hosted by a third party, for later retrieval by the intended recipient.

The lab is also capable of supporting both the v1.0, and v1.1 versions of the "Pathology Results Receiving" specification, and it needs to determine which of these is supported by the hospital.

The Path Oz results communication software queries the Hospital's SIL to request a Business Service Instance Record for "Pathology Results Receiving". It observes that the only means by which the Hospital chooses to realise this business service is via a notification store, which, when given a notification of the availability of a new result, will retrieve the result directly from the lab.

The hospital supports only services that implement the v1.0 specification.

The listing for the "notification-for-direct-retrieval" realisation of the business service gives details of the organisation that hosts the notification store, and the location of its SIL, as well as the WSDL interface that is used for notifications. In this case the notification store is hosted by the company NotificationsCentral.

As the Path Oz software is capable of using this mechanism for transferring results to the hospital, it makes another query at the NotificationsCentral SIL to request Technical Service Instance Records which list the right WSDL interface, provided on behalf of the organisational Id of the hospital. The appropriate Technical Service Instance Record is returned, which contains the endpoint at which to invoke the notification store.

2.4.1.2 Participating Roles

Service Consumer (played by Path Oz's results communication software)

Service Instance Locator hosting Business Service Instance Records (the Hospital's SIL)

Service Instance Locator hosting Technical Service Instance Records (Notifications Central's SIL)

2.4.1.3 Actions Performed

Service Consumer: Query Hospital's Service Instance Locator for Business Service "Pathology Results Receiving"

Hospital's Service Instance Locator:

Retrieve the appropriate Business Service Instance Record from storage.

Extract appropriate technical realisation information from the received Business Service Instance Record, including location of the SIL that contains the Technical Service Instance Record, and the Id and Certificate of the host of that SIL.

Check if this TSIR has recently been queried, and is stored in the local cache.

If not cached, query Notification Central's Service Instance Locator for Technical Service endpoint corresponding to each technical realisation in Business Service Instance Record.

Notification Central's Service Instance Locator:

Send Query Response (a Technical Service Instance Record) to Hospital's SIL

Hospital's Service Instance Locator:

Return BSIR, and associated TSIRs, to Consumer

2.4.1.4 Interfaces Required

Service Instance Locator: Query Business Service Instances,
Query Technical Service Instances.

2.4.2 Discover the latest endpoint for a known realisation of a Business Service

2.4.2.1 Interaction Details

A government pathology lab, Path Gov, has results from referrals from a Hospital in its own jurisdiction (introduced in Section 2.1). The lab has obtained the endpoint for the Hospital's SIL from a government directory. The jurisdiction has chosen direct sending of results using an interface hosted by the hospitals involved in receiving electronic pathology results, and all participants have recently been upgraded to implementations of version 1.1 of the specification.

The Path Gov results communication software queries the Hospital's SIL to request a Endpoint information for "Pathology Results Receiving" using the particular WSDL interface type that supports direct transmission as specified by the v1.1 specification.

The listing for the "direct-transmission" realisation of the business service gives details of the appropriate Technical Service Instance Record, which contains the endpoint at which to invoke the results receiving service.

2.4.2.2 Participating Roles

Service Consumer (played by Path Gov results communication software)

Service Instance Locator hosting Business Service Instance Records (the Hospital's SIL)

2.4.2.3 Actions Performed

Service Consumer: Query Hospital's Service Instance Locator for Technical Service "Pathology Results Receiving" constrained to a particular WSDL for a chosen communications mechanism, and version.

Hospital's Service Instance Locator:

Send Query Response (a Technical Service Instance Record)

Service Consumer: Extract appropriate endpoint from the received Technical Service Instance Record.

2.4.2.4 Interfaces Required

Service Instance Locator: Query Technical Service Instances.

2.4.3 Discover All Service Details for an Organisation

2.4.3.1 Interaction Details

The hospital in our scenarios has communicated a discharge summary to a GP, and wishes to make use of other NEHTA e-health communications that the GP supports. It already has the GP's SIL endpoint, and makes a query on that SIL for all Business Services of any kind, and their technical realisations.

2.4.3.2 Participating Roles

Service Consumer (played by the hospital PAS system)

Service Instance Locator hosting Business Service Instance Records (the GP's SIL)

Service Instance Locator hosting Technical Service Instance Records (Various SILs referred to by the Business Service Instance Records in the GP's SIL)

2.4.3.3 Actions Performed

Service Consumer: Query GP's Service Instance Locator for all Business Services

GPI's Service Instance Locator:

Retrieve all Business Service details from storage.

Extract appropriate technical realisation information from each Business Service Instance Record, including location of the SIL that contains the Technical Service Instance Record, and the Id and Certificate of the host of that SIL.

Check if this TSIR has recently been queried, and is stored in the local cache.

If not cached, query the Service Instance Locator referred to in the Business Service Instance Record for Technical Service endpoint corresponding to each technical realisation in that Record.

Referenced Service Instance Locators:

Send Query Response (a Technical Service Instance Record) to GP's SIL

Hospital's Service Instance Locator:

Return BSIRs, and associated TSIRs, to Consumer

2.4.3.4 Interfaces Required

Service Instance Locator: Query Business Service Instances,
Query Technical Service Instances.

2.5 Cache Service Instance Records

The Business Service Instance Records contained in the Hospital's SIL represent the technical and business arrangements made by the Hospital in the medium term to support various business services. The ways in which the services are realised can be expected to change only within months or years, rather than weeks or days. To reflect this, the Hospital places metadata with each Business Service Instance Record to indicate the "time to live" (or TTL) of the record. That is, how long the record may reasonably be cached by organisations that receive the record as the result of query.

In our scenario the TTL given to the Pathology Report Receiving Service, which is realised via a notification store, for which the hospital has a two year rolling contract with Notification Central, is set to 3 months. This indicates to clients of the business service that, unless there is a failure to connect with Notification Central's SIL to discover the Technical Service endpoint, that they need only query the hospital's SIL every three months.

However, the Medications Management Confirmation Receiving business service TTL is set by the hospital systems administrator to a short period (1 day) as the deployment of the new technical realisation of the business service explained in Section 2.2.4 approaches. But after that deployment takes place the TTL is set to the same 3 months timeout as the Pathology Report Receiving Service.

Each Technical Service Instance Records will also have time to live metadata. This is set to an appropriate period during which the endpoint for the technical service is expected to remain at the same address.

In our scenario, the Hospital sets the TTL for its Discharge Summary Acknowledgments Receiving Service direct put technical service to 5 days to reflect the weekly server performance tuning regime, during which some service endpoints may be relocated each week.

When Services are about to be changed, the TTL of either a Business or Technical Service Instance Record must be updated to reduce the expected lifetime of the record as it approaches the date at which it will be obsolete, and should not be cached by clients. Appropriate interfaces will be available to change TTLs.

The Notification Central's SIL contains a Technical Service Instance Record for the service endpoint where Notification Central hosts a notification store interface on behalf of the Hospital. It uses a more sophisticated scheme whereby the servers on which the notification store are maintained once a month, a new service endpoints might be allocated after the machines are rebooted. It calculates the number of hours until the maintenance is scheduled, and writes a new TTL into the Technical Service Instance Record four times a day.

In both the case of the Hospital and Notification Central's Technical Service Instance Records, the TTL is only a guide to the service users, which may choose to re-query the SIL upon whatever basis they choose. Service users which do choose to cache records for the recommended times will always implement a strategy whereby any failure of communication based on cached records will result in a fresh query to the SIL for either a Technical endpoint, or a Business Service realisation.

2.6 Externally Hosted SIL

There are many participants in the healthcare system who do not have a sophisticated IT capability, and will not directly host web services, including their own SIL. These organisations will need to outsource the hosting of services and the hosting of their SIL to other parties.

2.6.1 Authorising Publication to the SIL

In this scenario a small GP practice, Central City GPs, has outsourced the hosting of their SIL and their Notification Store to a communications hub, E-Health Services Ltd. Central City GPs has been given a grant by their local GP Division to support the receipt of Discharge Summaries using a NEHTA-certified implementation. They have signed a contract with Discharge Central, an outsourced host of Discharge Summary receiving services, which has installed some software on the practice's PC can invoke Discharge Central's Encrypted Store, and the Notification Store hosted for Central City GPs by E-Health Services Ltd.

Now the GP practice must authorise Discharge Central to place advertisements for the outsourced services into its SIL on its behalf. The practice manager has been given the organisational identifier of Discharge Central during the installation of the software, and now logs in to the web portal of E-Health Services Ltd (she could have done this by phone to the call centre as well), and adds the org id to the list of authorised publishers to its SIL.

Discharge Central then runs a set of services for receiving discharge summaries on behalf of Central City GPs, and advertises their endpoints into the SIL associated with Central City GPs' organisational identifier.

Appendix A: References

- [CPIS2008] NEHTA, *Concepts and Patterns for Implementing Services*, V2.0, 2008.