Trillium Bridge:
Bridging Patient Summaries across the Atlantic

OpenNCP & Trillium Bridge Joint Call
2014 April 9th

MINUTE IN PURPLE

Agenda and participants

Expected participants (attendees in red) (Apr 9th)

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- Marcello Melgara (WP2)
- Karima Bouquard (WP4)
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- Henrique Martins
- Mindaugas Ajauskas
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- Lilia Marques
- Elaine A. Blechman
- Eric Heflin
- Diogo Reis
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OpenNCP / Trillium Bridge Joint Call

- *Scope:*
  - Evaluate possible synergies between the Trillium Bridge and the OpenNCP projects

Exchange of PSs between US and EU

- *Trillium Bridge Scope:*
  - To compare specifications of EU and US patient summaries with the aim of developing and testing common and consistent specifications and systems allowing the interoperability of electronic health records across the Atlantic.

THE TRILLIUM «IDEAL» SCENARIOS

Patient Mediated

- ***Precondition:*** The citizen has an patient summary available and somehow accessible.
- ***Prior to unplanned care event:*** the Citizen receives copy of his/her Patient Summary/CCD fit for the purpose of use in an unplanned care setting abroad.
  - ***Outcome***: Original & Transformed patient summary documents (epSOS Pivot Document, epSOS friendly Patient Summary, C-CDA/CCD document) are maintained by the patient in a personal device or online Personal Health Record
- ***Unplanned Care Setting***: Patient provide/presents transformed (translated ?) Patient Summary / CCD to health professional (e.g. the foreign physician) using his/her personal device.
  - ***Outcome***: The receiver is able to read and understand key elements of the patient summary
- ***Following provision of care:*** Patient receives updated patient summary from foreign physician. [*Enhancement*] Using online services, patient is able to transform encounter report into the target document format.
- ***Outcome***: Original & Transformed patient encounter report (epSOS Pivot Document, epSOS friendly Patient Summary, C-CDA/CCD) are maintained by the patient in a personal device or online Personal Health Record

Provider Mediated

- The patient is receiving unplanned care abroad.
- The foreign healthcare professional, after having identified the patient, requests - using own EHR-S - to the patient's Country of Affiliation a Patient Summary of that patient.
- The remote country verifies if is entitled to fulfill such a request (correct patient identification, consent provided when applicable).
- If it is, the summary is retrieved and returned to the foreign healthcare professional in a format "suitable" for the receiver visualization, translated in the receiver language.
- The foreign healthcare professional visualizes the Patient Summary using own EHR-S
- The foreign HP returns a report of the encounter (as update of the patient summary) [*Enhancement*]
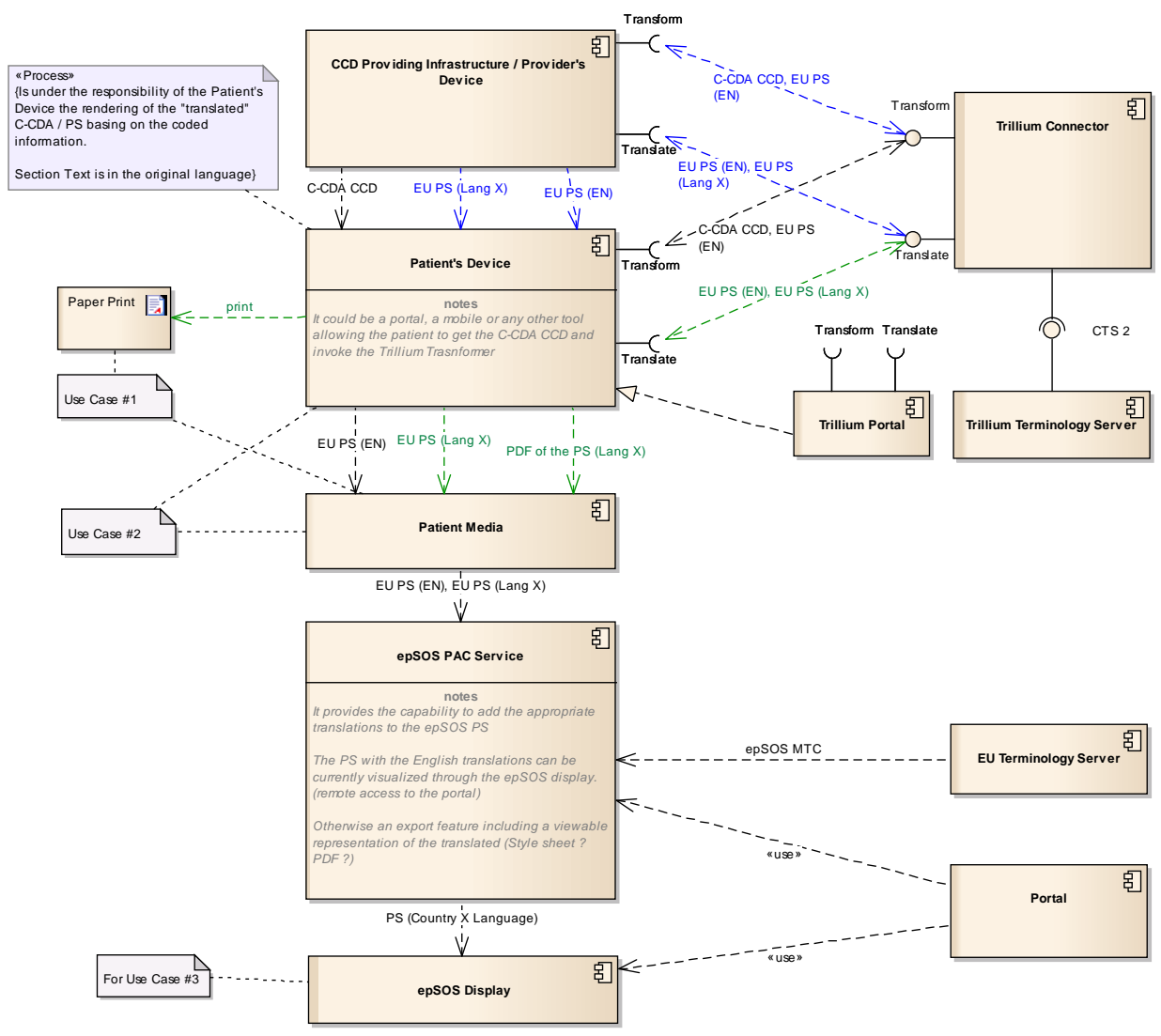
PATIENT MEDIATED

Architecture

cmp US document used in EU

Document produced in US and consumed in EU (C-CDA CCD to EU PS)

Use Case #1 - Visualization of a printable representation of the Patient Summary
Use Case #2 - Patient Summary visualization using patient's device, Patient Mediated
Use Case #3 - Patient Summary visualization using provider's device, Patient Mediated

Name:	US document used in EU
Author:	Giorgio
Version:	1.0
Created:	21/01/2014 11:41:23
Updated:	25/02/2014 11:54:41

«Process»
{Is under the responsibility of the Patient's Device the rendering of the "translated" C-CDA / PS basing on the coded information.

Section Text is in the original language}

CCD Providing Infrastructure / Provider's Device

Transform

Translate

C-CDA CCD, EU PS (EN)

C-CDA CCD

EU PS (Lang X)

EU PS (EN)

Trillium Connector

Transform

Translate

EU PS (EN), EU PS (Lang X)

Patient's Device

notes
It could be a portal, a mobile or any other tool allowing the patient to get the C-CDA CCD and invoke the Trillium Trasnfomer

Transform

C-CDA CCD, EU PS (EN)

Translate

EU PS (EN), EU PS (Lang X)

Paper Print

print

Use Case #1

Transform Translate

Trillium Portal

CTS 2

Trillium Terminology Server

EU PS (EN)

EU PS (Lang X)

PDF of the PS (Lang X)

Use Case #2

Patient Media

EU PS (EN), EU PS (Lang X)

epSOS PAC Service

notes
It provides the capability to add the appropriate translations to the epSOS PS

The PS with the English translations can be currently visualized through the epSOS display. (remote access to the portal)

Otherwise an export feature including a viewable representation of the translated (Style sheet ? PDF ?)

epSOS MTC

EU Terminology Server

«use»

Portal

PS (Country X Language)
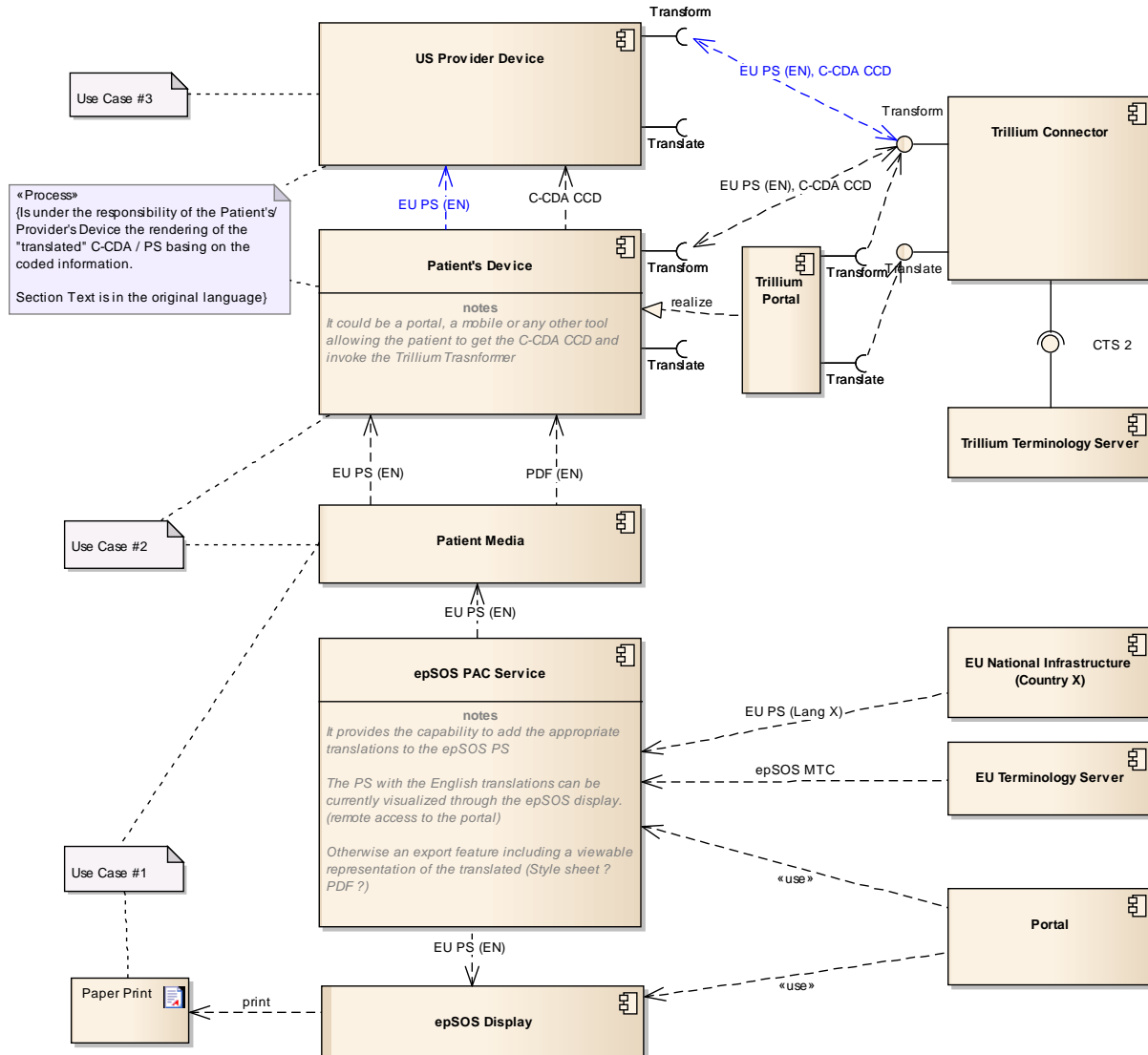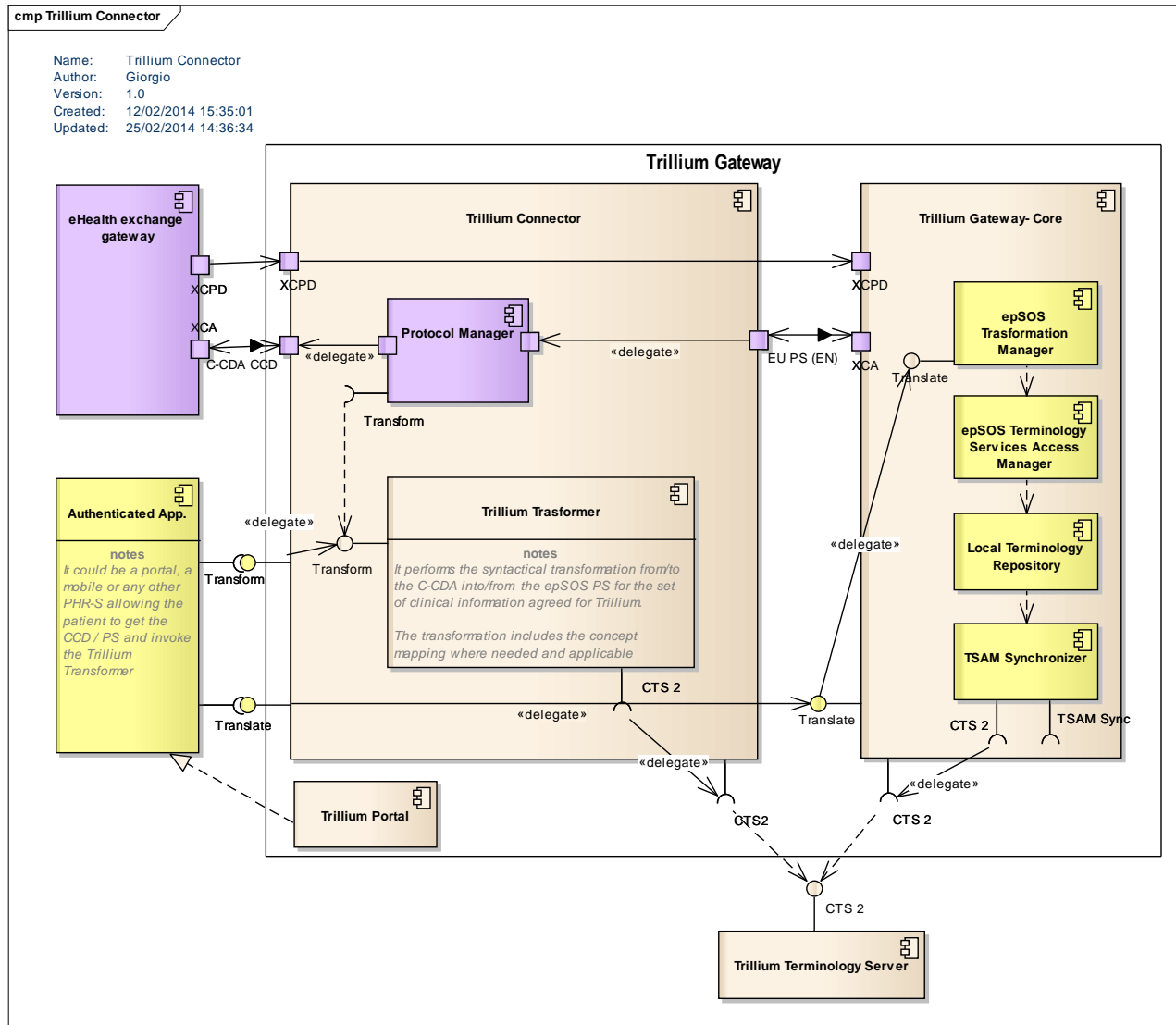
For Use Case #3

epSOS Display

«use»

cmp EU document used in US

Document produced in EU and consumed in US (EU PS/HCER to C-CDA CCD)

Use Case #1 - Visualization of a printable representation of the Patient Summary
Use Case #2 - Patient Summary visualization using patient's device, Patient Mediated
Use Case #3 - Patient Summary visualization using provider's device, Patient Mediated

Name:	EU document used in US
Author:	Giorgio
Version:	1.0
Created:	21/01/2014 11:41:23
Updated:	25/02/2014 12:34:19

Transform

US Provider Device

Use Case #3

Translate

EU PS (EN), C-CDA CCD

Transform

Trillium Connector

EU PS (EN)   C-CDA CCD

EU PS (EN), C-CDA CCD

«Process»
{Is under the responsibility of the Patient's/ Provider's Device the rendering of the "translated" C-CDA / PS basing on the coded information.

Section Text is in the original language}

Patient's Device

Transform

Trillium Portal

Transform Translate

notes
It could be a portal, a mobile or any other tool allowing the patient to get the C-CDA CCD and invoke the Trillium Trasnformer

realize

Translate

Translate

CTS 2

Trillium Terminology Server

EU PS (EN)   PDF (EN)

Use Case #2

Patient Media

EU PS (EN)

EU National Infrastructure (Country X)

epSOS PAC Service

notes
It provides the capability to add the appropriate translations to the epSOS PS

The PS with the English translations can be currently visualized through the epSOS display. (remote access to the portal)

Otherwise an export feature including a viewable representation of the translated (Style sheet ? PDF ?)

EU PS (Lang X)

EU Terminology Server

epSOS MTC

«use»

Use Case #1

Portal

EU PS (EN)

«use»

Paper Print

print

epSOS Display

«use»

US document consumed in EU – Scenario 1

- The patient has his/her CCD on a device (media/laptop/mobile)
- The patient is registered on the Trillium Portal
- The patient accesses with his/her device the Trillium Portal, selects the transformation service; selects and uploads his/her CCD; saves the transformed PS (in English) on his/her media
- The patient provides the English PS (pivot) to the HP
- The HP uses the epSOS components for translating and displaying the received PS.

US document consumed in EU – Scenario 1

- The patient has his/her CCD on a device (media/laptop/mobile)
  - For the demo: prepare the input CCD (done)
- The patient is registered on the Trillium Portal
  - Trillium Portal feature
    - Manage user registration / authentication (external component ?)
    - Allow to select and upload XML file from the client device
    - Allow to invoke the Transformation Service
    - Allow to save the returned XML file on the client device
    - Other features ?
  - Who will develop the Trillium portal ? Where it will be deployed ?
  - For the demo:
    - User credientials preloaded
    - The Trillium Portal is a mock-up that takes the well-known input CCDs and returns the prepared PS [undertsand who can develop it]

US document consumed in EU – Scenario 1

- The patient accesses with his/her device the Trillium Portal, selects the transformation service; selects and upload his/her CCD; saves the transformed PS (in English) on his/her media.
  - Assumption: It is available a transformation component (depends on the «Trillium Transformer» task)
  - Assumption: it is available a Terminology Server with mappings stored (depends on the «Trillium Transformer» task). Prepare mapping tables for the demo (if actually used)
  - Who develop the transformation service ? (REST ?) Where those components will be deployed ?
  - For the demo:
    - prepare transformed PSs in advance. [to be done]
    - The Trillium Portal is a mock-up that takes the well-known input CCDs and returns the prepared PS [undertsand who can develop it]

US document consumed in EU – Scenario 1

- The patient provides the English PS to the HP
  - Demo: usb key ? Already available on a media ?
- The HP uses the epSOS components for translating and displaying the received PS
  - Demo:
    - Using the epSOS HPs' portal, the HP loads the english PS, and see a traslated version of it
  - OpenNCP: hypotesis for discussion
    - The portal has a load function that gets the PS from a media
    - The file is processed by the NCP-B semantic components
    - The translated PS is displayed with the epSOS display:
      - would be possible to enable the display also of the narrative text in english ?
    - PS is alread translated (friendly B pivot) load and display…

- Built a new functionality that relies on transaltion services already present on OpenNCP
  - Upload PS (pivot / friendly)
  - Return a translated PS and dispaly it

  - Functions:
    - Loading
    - Transcode & Translation (based on MTC // LTR)
    - Displaying

- Estimation => 2 persons x 5 days (excluding transcoding)

- Enable the display also of the narrative texts in english:
  - OK, included in the display optionalities.

US document consumed in EU – Scenario 1.a

- ## The patient uses his/her mobile App for asking for a translated PS in Language X
  - The CCD is selected and the transformation service is invoked
  - The returned EU IS is used as input for asking for translation in language X
  - The returned EU PS in language X is saved on the mobile app for future use
- ## The patient displays the content within his/her device

US document consumed in EU – Scenario 1.a

- The patient uses his/her mobile App for asking for a translated PS in Language X
  - Demo: No Mobile App available for the demo in Athen..
  - The returned EU IS is used as input for asking for translation in language X
    - OpenNCP: might the epSOS translations service be used by external services ? (see diagrams)
  - The returned EU PS in language X is saved on the mobile app for future use
- The patient displays the content within his/her device

US document consumed in EU – Scenario 1.a

- The patient uses his/her mobile App for asking for a translated PS in Language X
    - The CCD is selected and the transformation service is invoked
        - Assumption: It is available a transformation component (depends on the «Trillium Transformer» task)
        - Assumption: it is available a Terminology Server with mappings stored (depends on the «Trillium Transformer» task)
            - mapping tables for the demo to be prepared (if actually used)
        - Who develop the transformation service ? (REST ?)
        - Where those components will be deployed ?
    - The returned EU PS is used as input for asking for translation in language X
        - Target Languages: Portuguese, Spanish, Italian; (any other?) . Check if translations are actually available.
        - Check with the Open NCP team the effort required for exposing the epSOS Translate() JAVA operation through an «external» Service
        - Who develop this service ?
        - Where those components will be deployed ?
        - Specify how we suppose to fill the LTR ? (could we use a dump of the currently used LTR ? (SQL script))
    - The returned EU PS in language X is saved on the mobile app for future use
        - OK ?

US document consumed in EU – Scenario 1.a

- The patient uses his/her mobile App for asking for a translated PS in Language X
    - Could the Smart PHR solution be used for this scenario ?
    - The CCD is selected and the transformation service is invoked
        - Assumption: It is available a transformation component (depends on the «Trillium Transformer» task)
        - Assumption: it is available a Terminology Server with mappings stored (depends on the «Trillium Transformer» task)
            - mapping tables for the demo to be prepared (if actually used)
        - Who develop the transformation service ? (REST ?)
        - Where those components will be deployed ?
    - The returned EU PS is used as input for asking for translation in language X
        - Target Languages: Portuguese, Spanish, Italian; (any other?) . Check if translations are actually available.
        - Check with the Open NCP team the effort required for exposing the epSOS Translate() JAVA operation through an «external» Service
        - Who develop this service ?
        - Where those components will be deployed ?
        - Specify how we suppose to fill the LTR ? (could we use a dump of the currently used LTR ? (SQL script))
    - The returned EU PS in language X is saved on the mobile app for future use
        - OK ?

US document consumed in EU – Scenario 1.a

- ## The patient displays the content within his/her device
  - Prepares at least three stylesheets for each target language (IT; PT; SP) that work with the «target» translated documents
    - Assumption we have already prepared transformed documents. (in progress)
    - Who prepare these stylesheets ?
  - Trillium stylesheets need to be loaded in and used by the Mobile App.
    - Any problem with this ?

EU document consumed in US

US document consumed in EU – Scenario 1.a

- The patient accesses the Patient Portal and asks for a English translated PS using the epSOS PAC service
  - Is the English translation available for the PAC service ?
  - Who is piloting the epSOS PAC service ? Will be able to pilot ?

  - Tested in connect-athon .

- The patient save as translated PS the PS on his/her device the
  - pdf (for download done ?)
  - XML (CDA) (save as …)
  - Pdf /html done
  - XML to be done…
  - OpenNCP: requires a sort of save as feature

  - New functionality, save as
    - PDF
    - Pivot PS CDA (English) XML

  - OPTION 0 : As single files   [3 days + 2 persons]
  - OPTION 1 : With XDM metadata (more info needed, to be evaluated POSTPONED)

- Licinio: willing to participate, need additional information for the governance / financial model
  - Trillium can support the OpenNCP

- Marcello : analysis for extensional services as OpenNCP assets in EXPAND.

- The patient shows the html (or pdf) to the US provider
  - Is it OK ?

US document consumed in EU – Scenario 1.a

- The patient accesses the Patient Portal and asks for a English translated PS using the epSOS PAC service
  - Is the English translation available for the PAC service ?
  - Who is piloting the epSOS PAC service ? Will be able to pilot ?

  - Tested in connect-athon .

- The patient save as translated PS the PS on his/her device the
  - pdf (print as pdf and doenload => done)
  - XML (CDA) (save as …)
  - Pdf /html done
  - XML to be done…

  - OpenNCP: requires a sort of save as feature

  - New functionality, save as
    - PDF
    - Pivot PS CDA (English) XML

  - OPTION 0 : As single files   [3 days + 2 persons]
  - OPTION 1 : With XDM metadata (more info needed, to be evaluated POSTPONED)

- Licinio: willing to participate, need additional information for the governance / financial model
  - Trillium can support the OpenNCP

- Marcello : analysis for extensional services as OpenNCP assets in EXPAND.

US document consumed in EU – Scenario 1.b

- *< first two steps as 1.a>*
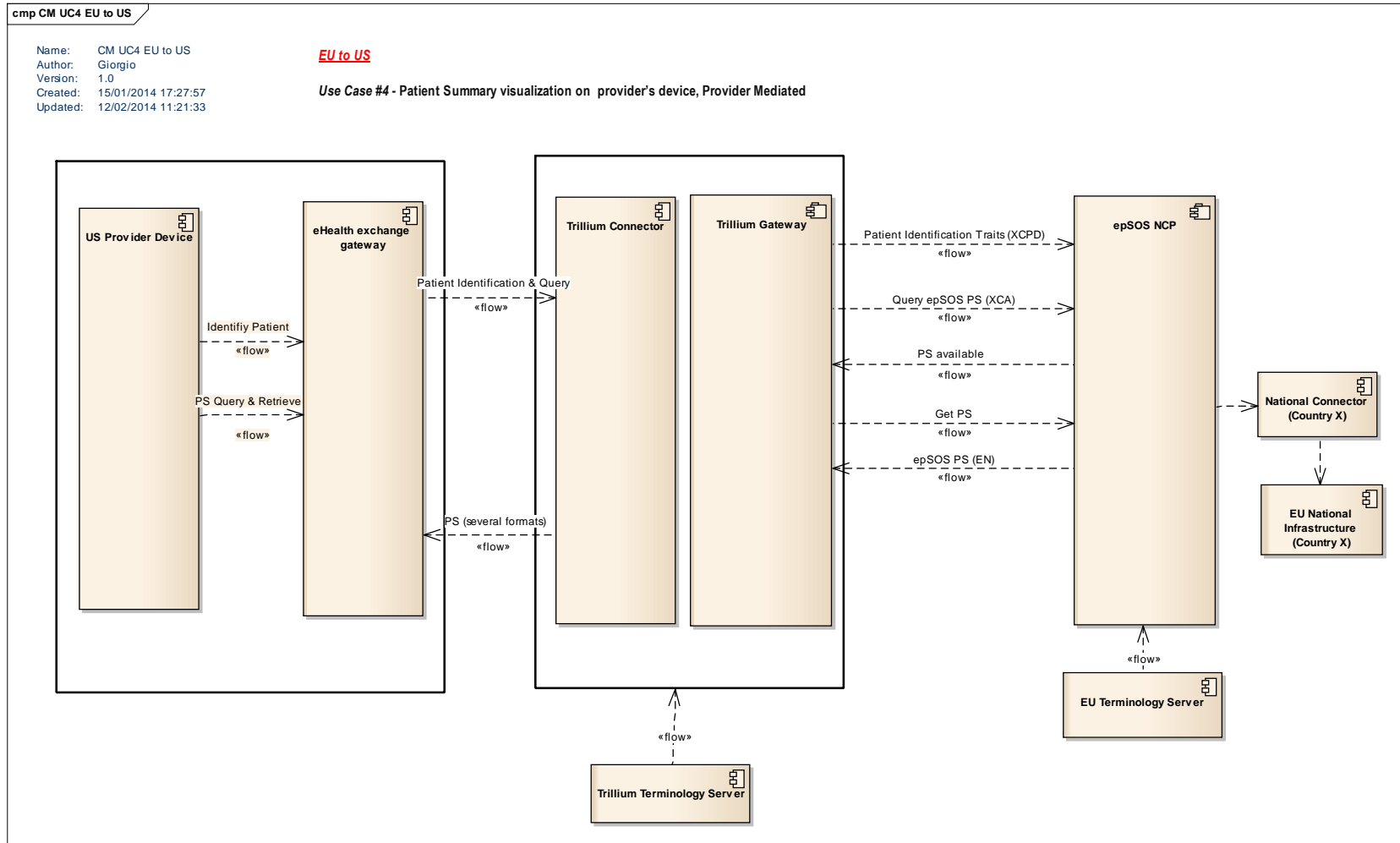
- The patient is registered on the Trillium Portal

- The patient accesses with his/her device the Trillium Portal, selects the transformation service; selects and uploads his/her PS; saves the transformed CCD (in English) on his/her device/media.

- The CCD is displayed on a Patient Device
  - *OR*
- The CCD is provided to Provider that use his/her device for the visualization

US document consumed in EU – Scenario 1.b

- *< first two steps as 1.a>*
- See slide above

  - For the demo: prepare the input CCD (in progress)
- The patient is registered on the Trillium Portal
  - Trillium Portal feature
    - Manage user registration / authentication (external component ?)
    - Allow to select and upload XML file from the client device
    - Allow to invoke the Transformation Service
    - Allow to save the returned XML file on the client device
    - Other features ?
  - Who will develop the Trillium portal ?
  - Where it will be deployed ?

US document consumed in EU – Scenario 1.b

- The patient accesses with his/her device the Trillium Portal, selects the transformation service; selects and uploads his/her PS; saves the transformed CCD (in English) on his/her device/media.
  - Assumption: It is available a transformation component (depends on the «Trillium Transformer» task)
  - Assumption: it is available a Terminology Server with mappings stored (depends on the «Trillium Transformer» task)
    - Prepare mapping tables for the demo (if actually used)
  - Who develop the transformation service ? (REST ?)
  - Where those components will be deployed ?

- The CCD is displayed on a Patient Device
  - *OR*
- The CCD is provided to Provider that use his/her device for the visualization

  - Which kind of provider / patient device we use for the demo ?
  - Prepares a stylesheet for disaplying the "transformed" CCD
    - Assumption we have already prepared transformed documents. (in progress)
    - Who prepare the stylesheet ?
  - Trillium stylesheet need to be loaded in and used by the patient / provider Device.
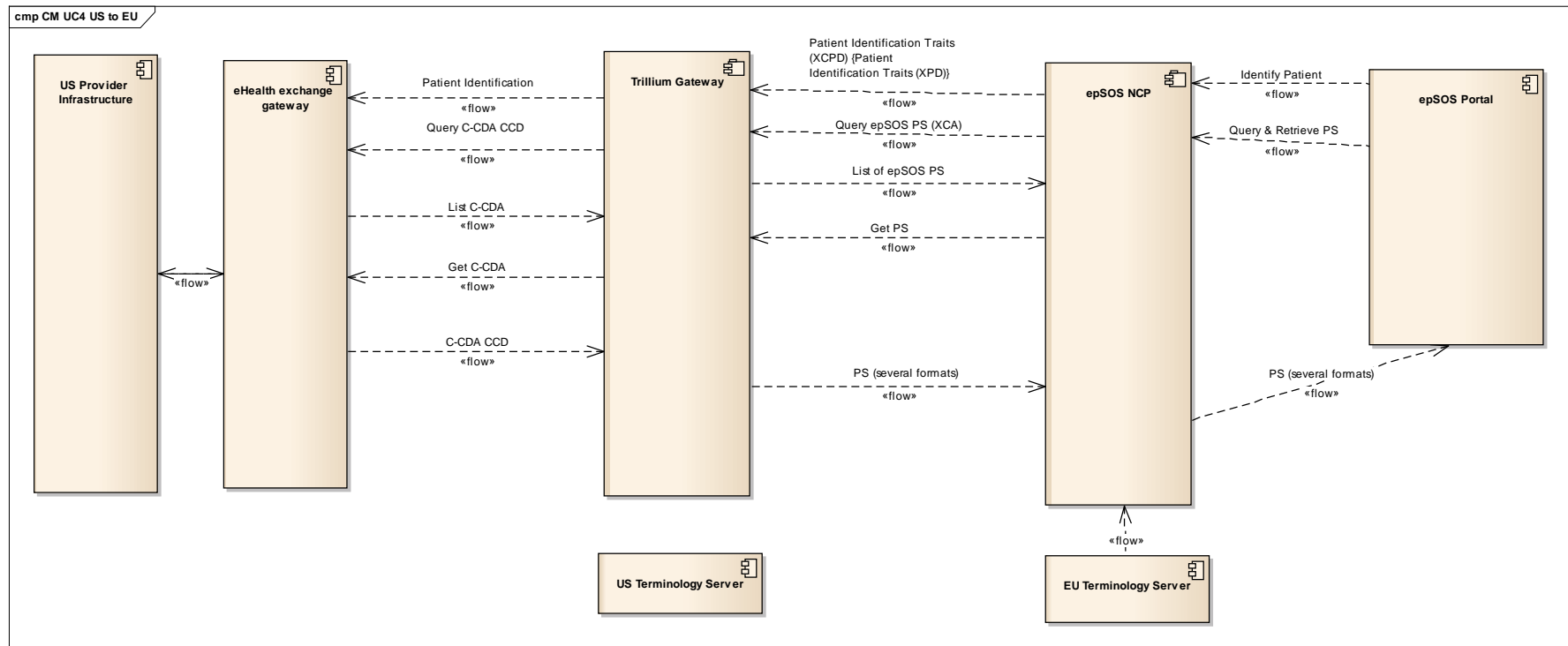   - Any problem with this ?

PROVIDER MEDIATED
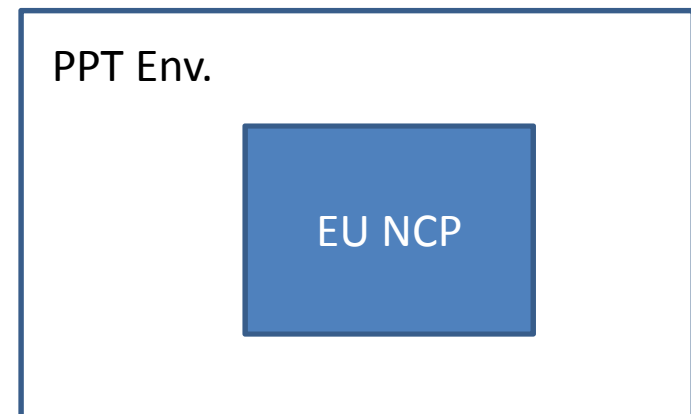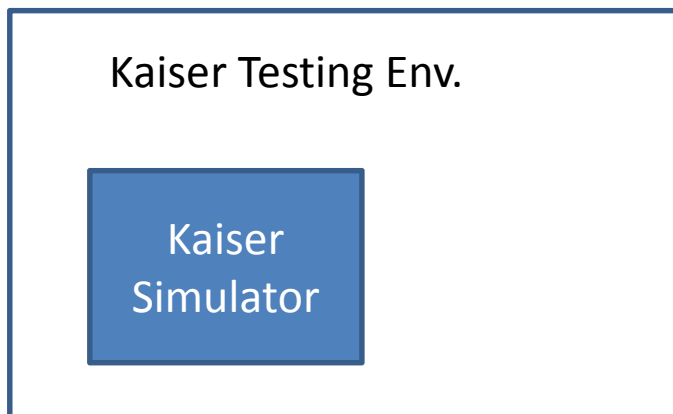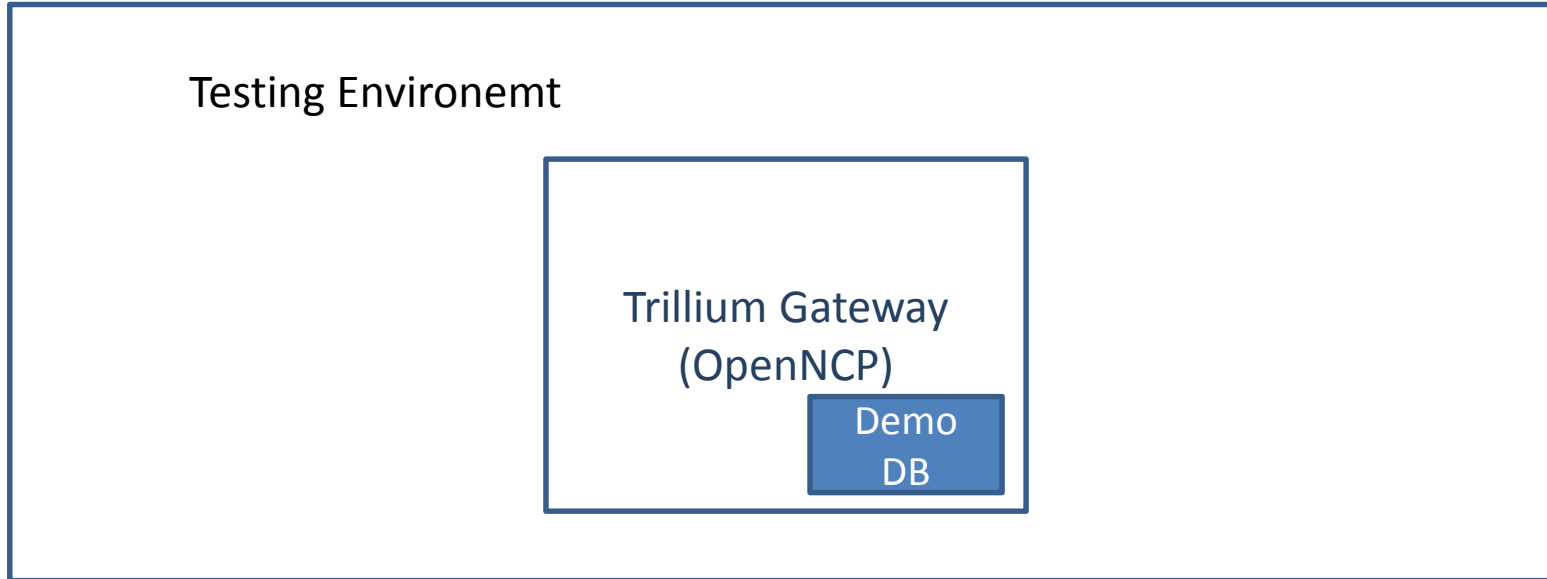
Architecture

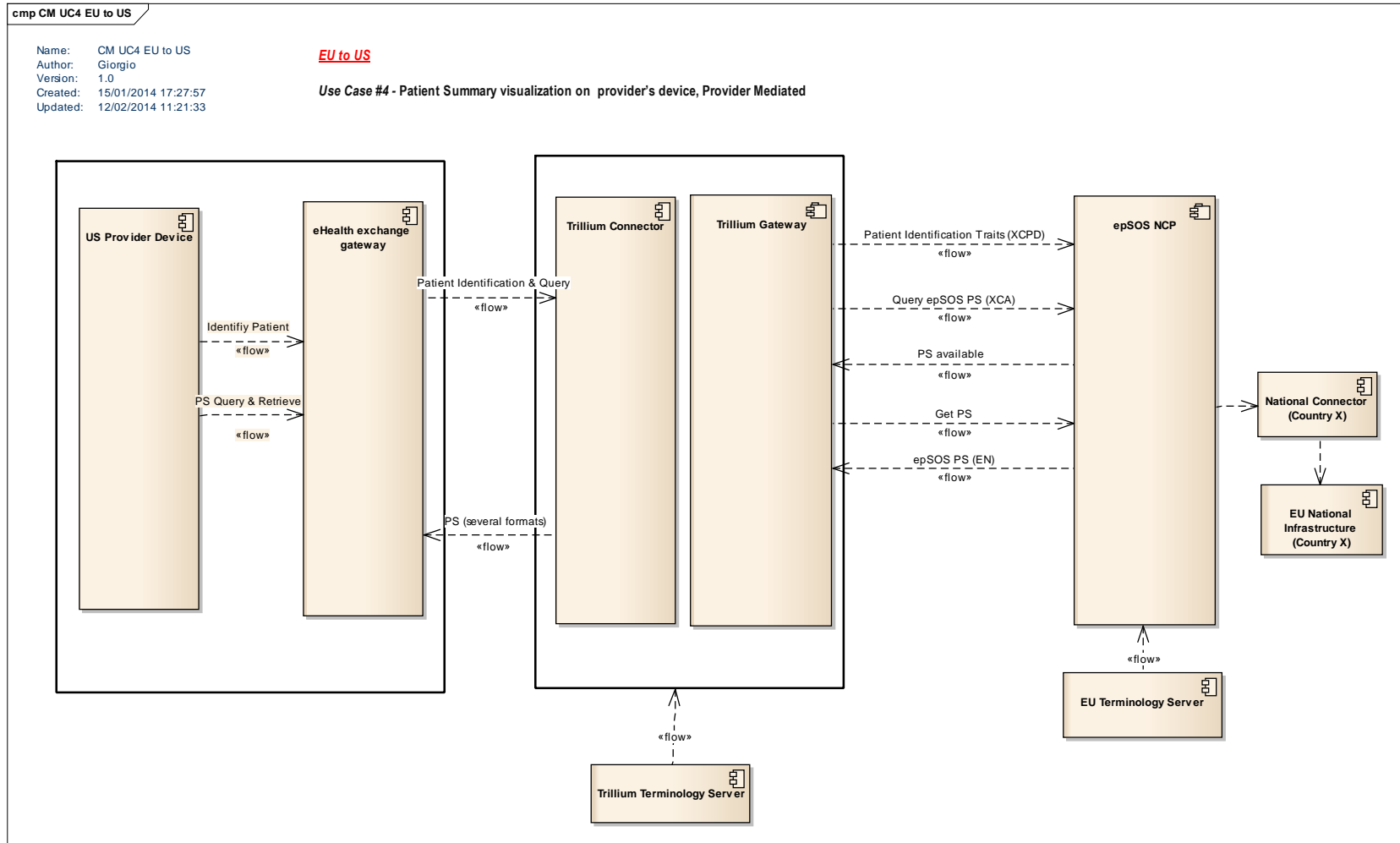# US Provider query EU PS

EU Provider queries for the CCD

Realizeable Approach ?

Testing Environemt

Trillium Gateway
(OpenNCP)

Demo
DB

Kaiser Testing Env.

Kaiser
Simulator

PPT Env.

EU NCP

US Provider query EU PS

Prerequisites

- User identifies and authenticates on the «local» infrastructure

- Services are accessibile only for specific roles
  - epSOS uses SAML assertions, eHealth exchange as well
  - To be analyzed how SAML is used and in case apply some kind of transformation
  - To be understood if is a mapping among used roles is needed
  - Demo:
    - Not realizeable for the demo
    - how to deal with it ?

Patient Identification (Query From US)

- How get the end points for the services:
  - Demo : configure the trillium gateway as target for the eHealth exchange gw,
  - Provide the list of OID used for «affinity domain» and identifiers
  - Prepare the list of demographic traits to be used for the demo
  - Exchange a sample of produced transactions (XCPD; XCA; …)

Query (Query From US)

- Could US consumer query for the EU PS ?
  - No problem for querying for EU PS (Patient ID and LOINC Code)

- If EU PS is transformed into C-CDA. What About the XDS metadata ? What's happen if there is a mismatch between content and metadata ?
  - No problems with the query response
  - The RetrieveDocumentSet have no content specific metadata in the response
    - To be verified if the receiver may have problem with a content obtained (C-CDA) that is not what has been requested (the EU PS)
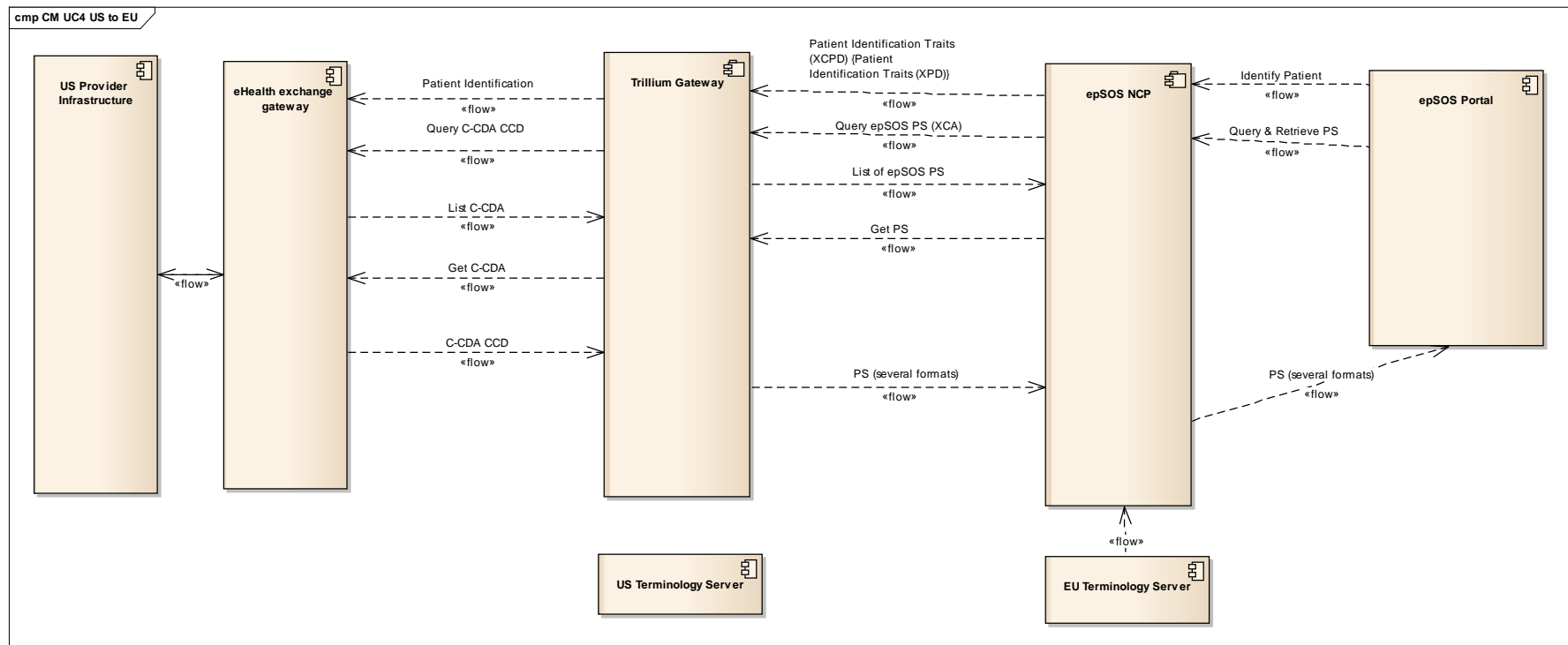
Query (Query From US)

- The query supports multiple XDSDocumentEntryClassCode
  - Check be this a solution ?
  - Check if this is actually supported by implementations
- Check if it is possible to disable the transformation on the Trillium OpenNCP // otherwise evaluate how to fill the Trillium gateway Local Terminology Repository

EU Provider queries for the CCD

Patient Identification (Query From US)

- We assume that EU providers use the epSOS portal

- Adapt the portal in order to add US as new country

  - Since Each organization has its own gateway it has been suggested to include US-Kaiser instead of US for the time being

Query (Query From EU)

- Currently the query is made for Patient Summary
  - Is it possible to configure the NCP in order to support a query for CCD or query for both CCD and EU PS
- When retrieved the CCD is trasformed into a EU PS into the Trillium Connector before being returned to the NCP.