



## DICOM: All FHIR'ed Up!

Steven Borg / Microsoft



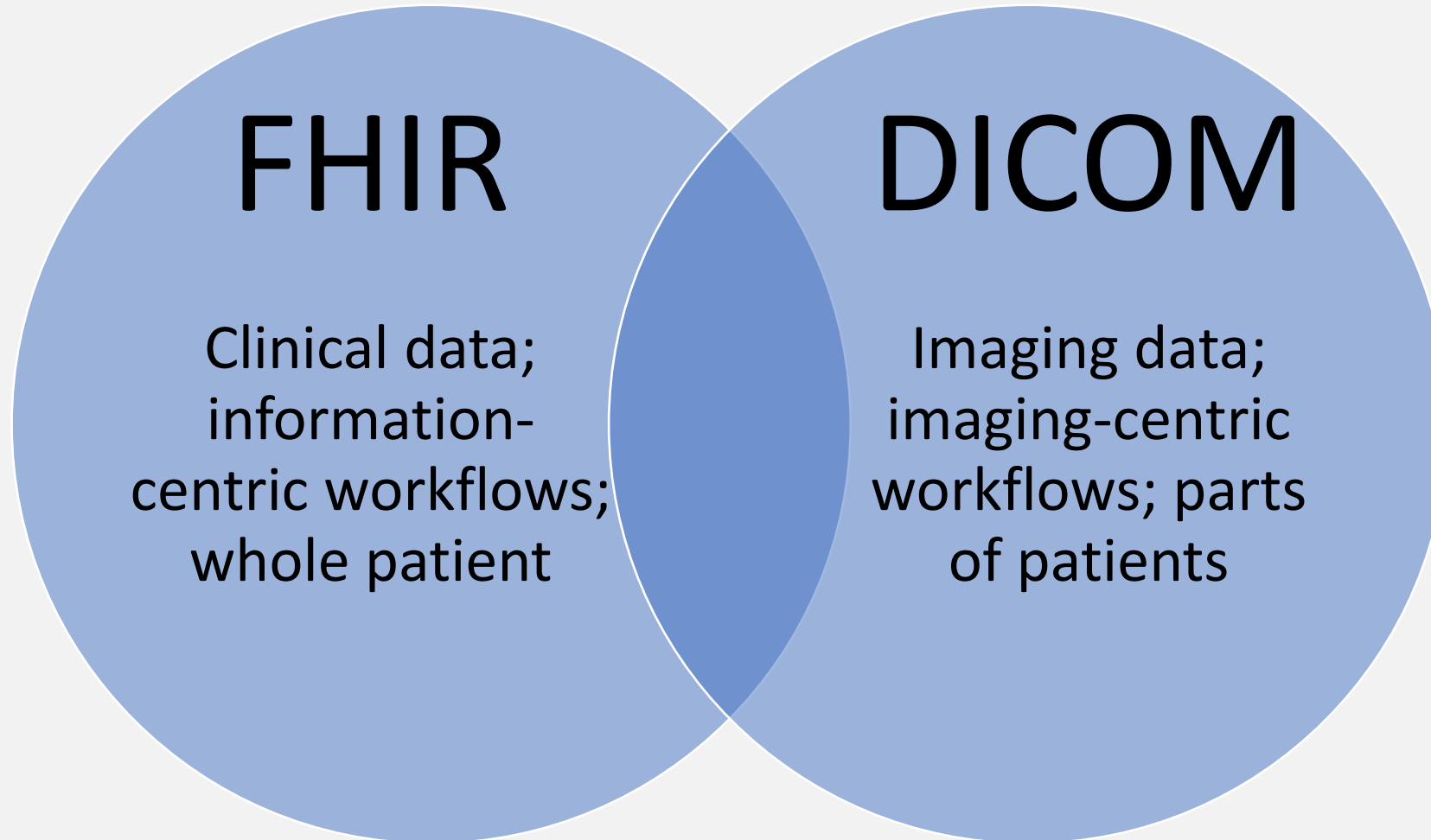
HL7 FHIR DevDays 2020, Virtual Edition, November 17–20, 2020 | @FirelyTeam | #fhirdevdays | [www.devdays.com/november-2020](http://www.devdays.com/november-2020)

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# Learning Objectives

- Why DICOM metadata belongs in FHIR
- Introduce Medical Imaging Server for DICOM and DICOM Cast
- Demo: Exploring clinical and imaging data
- Getting started with DICOM Cast
- Q & A

# FHIR and DICOM



HL7 – Imaging Integration

DICOM WG-20 – Integration of  
Imaging and Information Systems

## A Small List of Use Cases

- Add imaging to other hospital systems
  - [https://dcom.net/studies/{study\\_id}](https://dcom.net/studies/{study_id})
- Add imaging to reports
  - <https://dcom.net/studies/{study}/series/{series}/instances/{inst}/rendered>
- Support queries that span clinical and imaging data
  - Find patients with mammograms with diagnosed benign lumps
- Provide feedback to radiologists
  - Trigger feedback when physician validates/invalidates radiologist determination

## Two specific examples

### Unlocks Researchers:

*“Give me all the medications prescribed with all the CT Scan documents and their associated radiology reports for any patient older than 45 that has had a diagnosis of osteosarcoma over the last 2 years.”*

### Unlocks Teleradiologists:

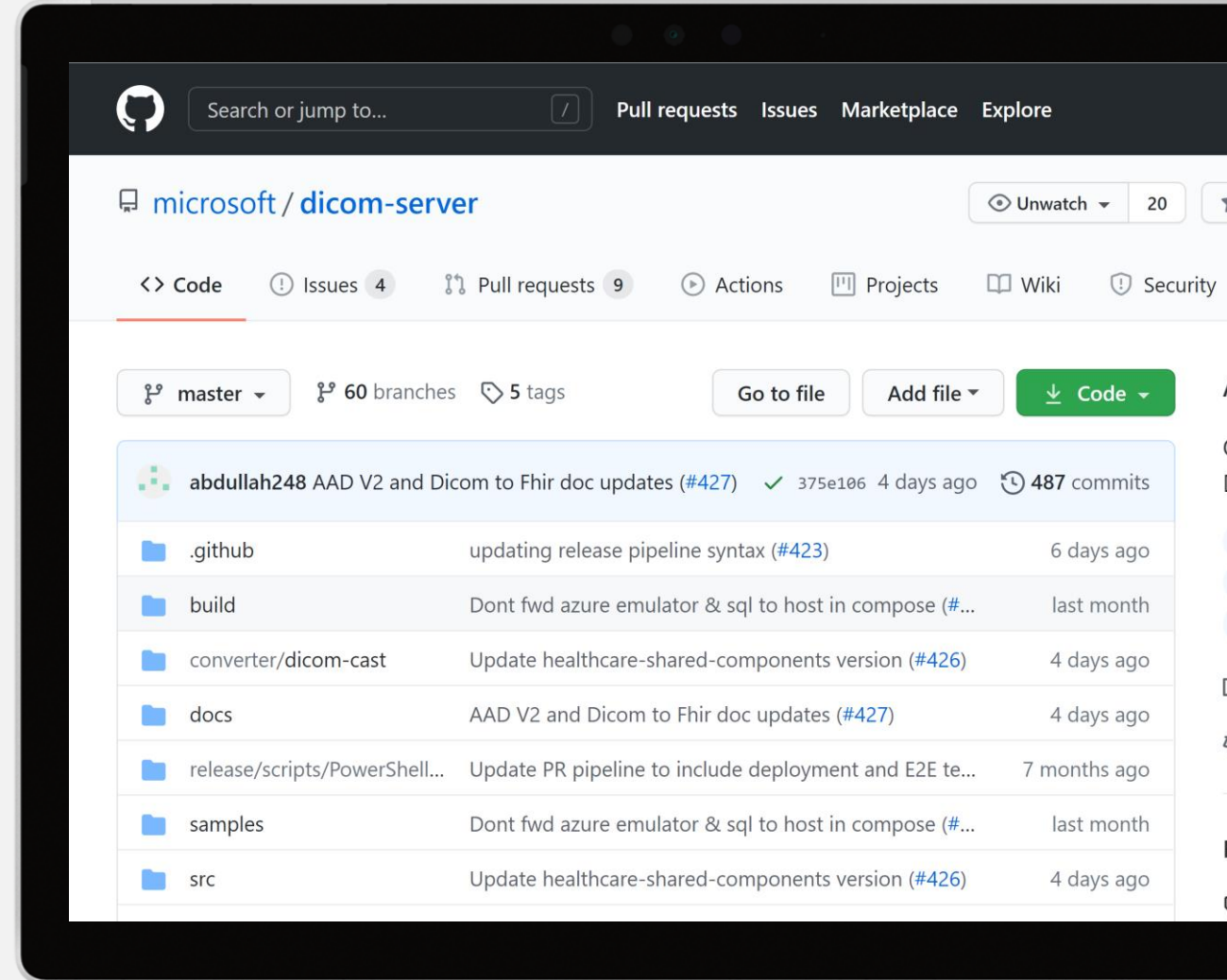
*“Take parathyroid for example. We do more than any other clinic in the country, and yet I have to beg and plead for surgeons to tell me what they actually found. Out of the more than 500 studies I do each month, I get direct feedback on only three or four.”*

# Medical Imaging Server for DICOM

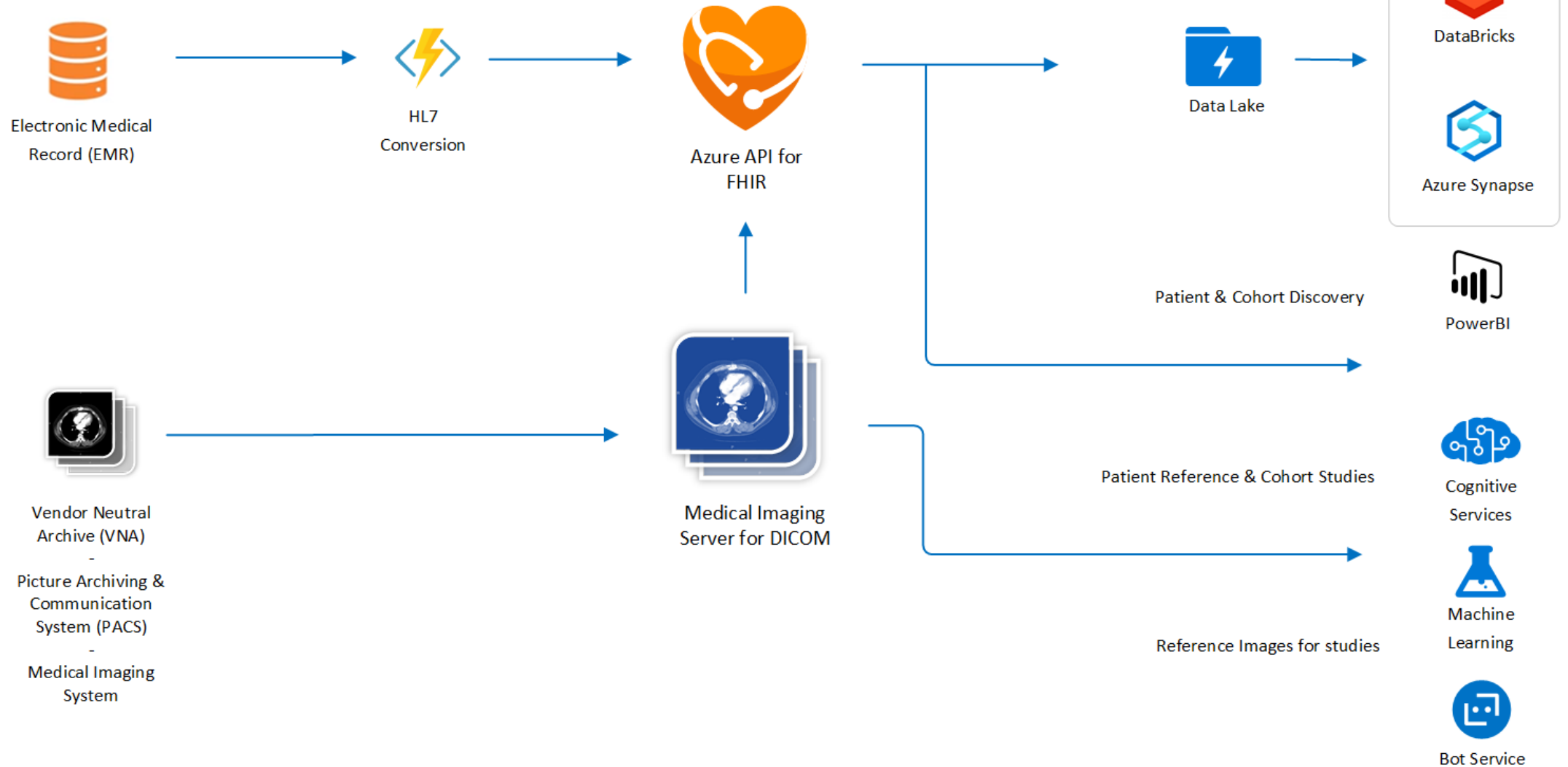
Allows standards-based communication with any DICOMweb™ enabled systems

Easy deployment in Azure and migration of medical imaging data to the cloud

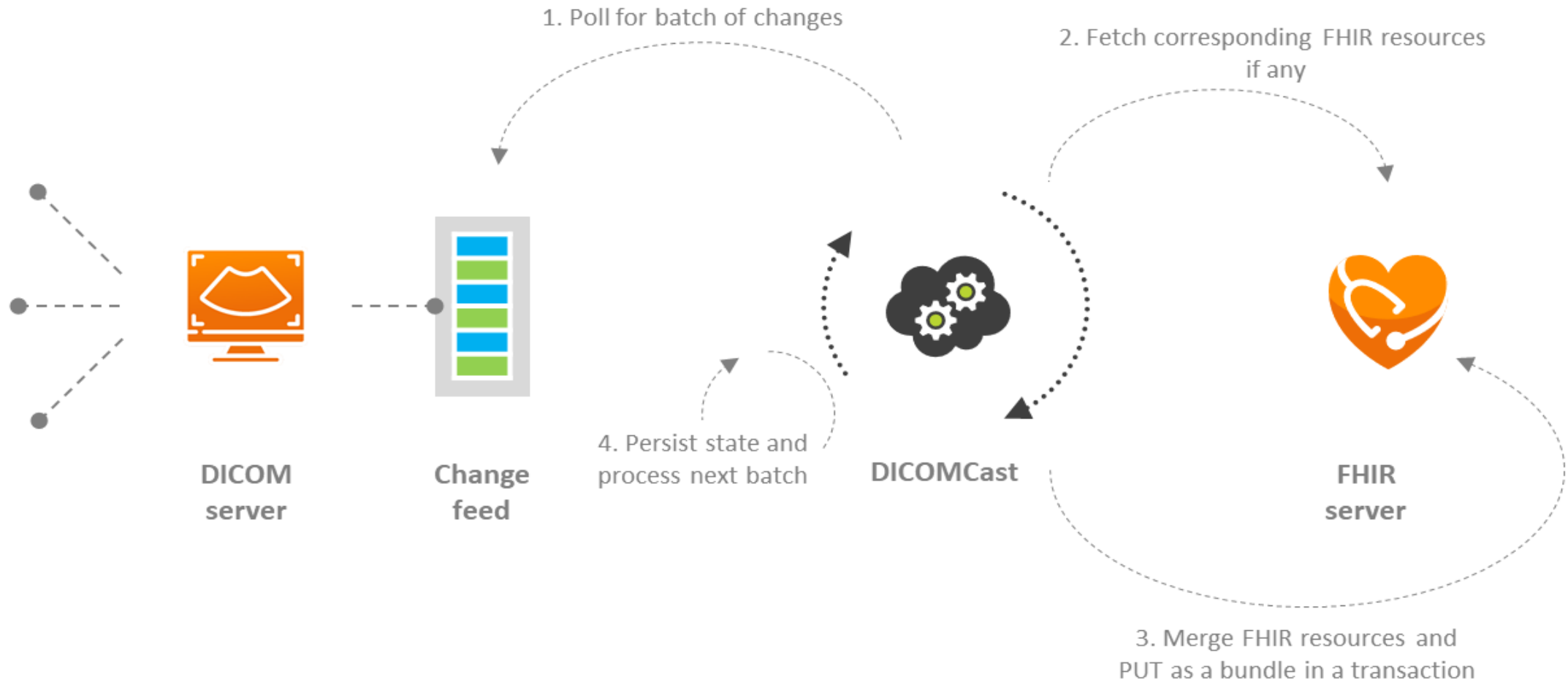
Introduces integration between DICOM imaging metadata with clinical data in FHIR



# Medical Imaging Server for DICOM

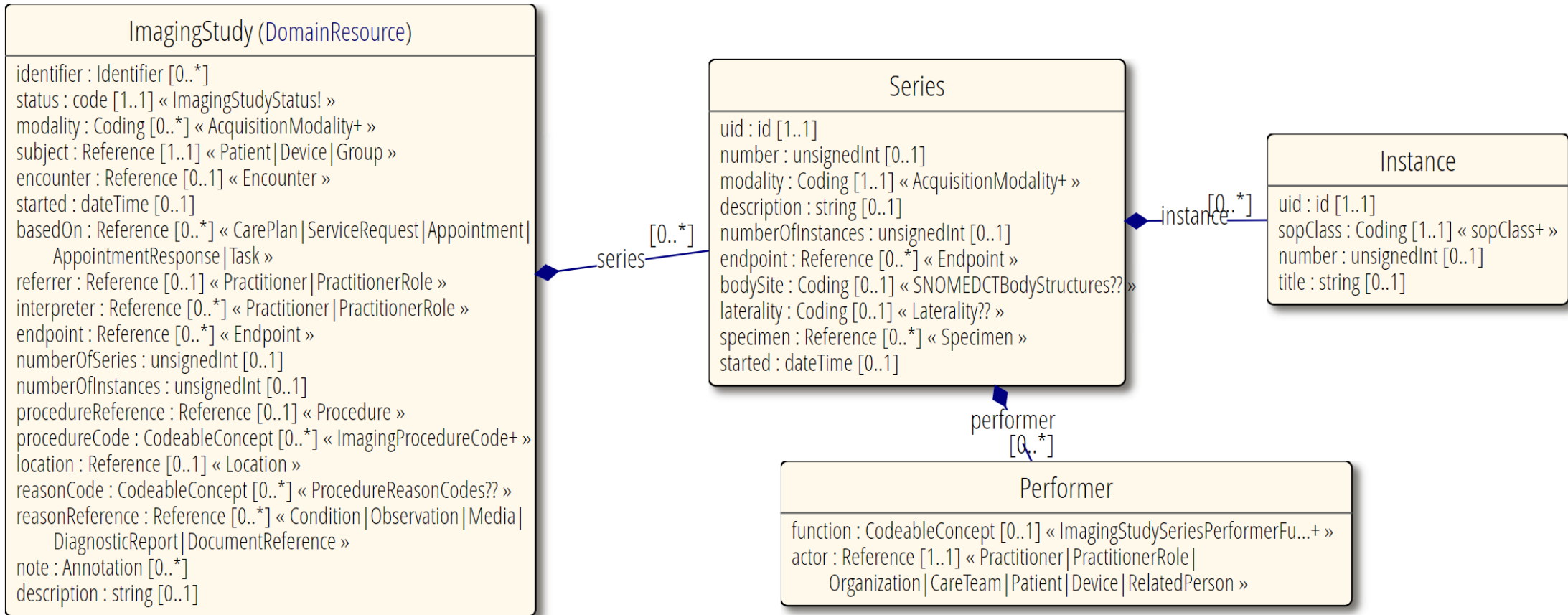


# DICOM Cast





# FHIR ImagingStudy resource



## Demo

*“Give me all the medications prescribed with all the CT Scan documents and their associated radiology reports for any patient older than 45 that has had a diagnosis of osteosarcoma over the last 2 years.”*

From SIIM Hackathon dataset we can ask this instead:

*“Give me all the medications prescribed **with all the mammography imaging** and their associated diagnostic reports for any patient older than 54 that has had a breast lump over the last 20 years.”*

# DEMO

## What's Next?

- Structured Reports
- Secondary Capture
- DICOM Seg (and related metadata mark-up)
- Parsing free text radiology notes into structured FHIR data
- (and the list goes on...)

# Getting started with DICOM Cast

Spin up a configured FHIR, DICOM and DICOM Cast environment with defaults in less than 3 minutes.

<https://github.com/microsoft/dicom-server/blob/master/docs/quickstarts/deploy-dicom-cast.md>

Then push a few medical images to the DICOMweb endpoint.



### Deployment scope

Select the subscription to manage deployed resources and manage all your resources.

Subscription \* ⓘ

Resource group \* ⓘ

[Create new](#)

### Parameters

Region \* ⓘ

Service Name \* ⓘ

# Getting started with the Medical Imaging Server for DICOM

Two easy ways to getting started:

- Docker
  - <https://github.com/microsoft/dicom-server/blob/master/docs/quickstarts/deploy-via-docker.md>
- Azure
  - <https://github.com/microsoft/dicom-server/blob/master/docs/quickstarts/deploy-via-azure.md>

# Get Involved!

- Deploy the solution and play
  - <https://github.com/microsoft/dicom-server>
- Work with HL7 and DICOM
  - <http://www.hl7.org/Special/committees/imagemgt/>
  - <https://www.dicomstandard.org/activity/wgs/wg-20>
- Documentation
  - <https://github.com/microsoft/dicom-server>

## Contact

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# Questions?