PICRIB

Platform for Imaging in Clinical Research in Brussels

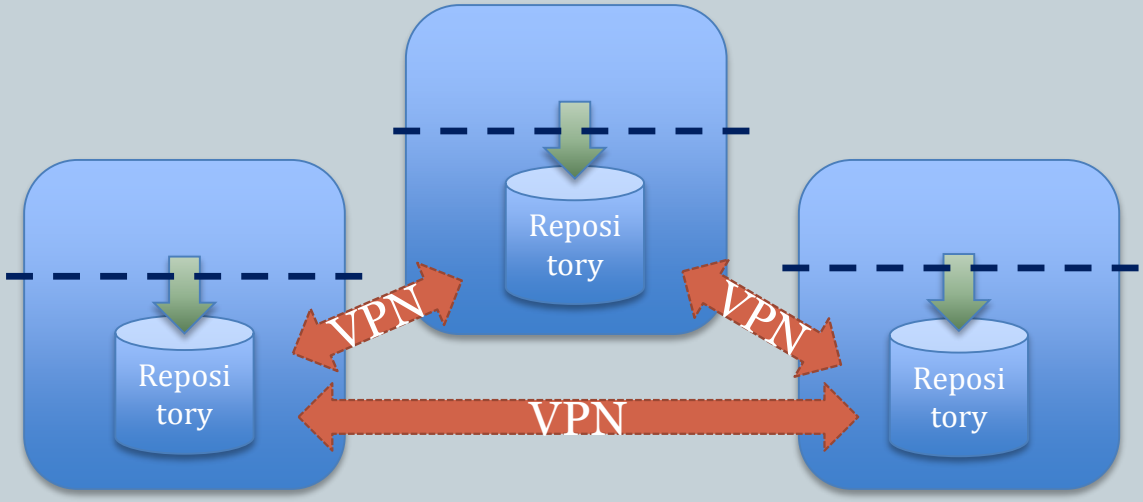
IMPROVING THE INTEROPERABILITY OF THE BRUSSELS UNIVERSITY HOSPITALS

Objectives

- To improve the interoperability of the Brussels University Hospitals, Imaging labs and the EORTC with respect to their imaging activities
  - Clinical care: secured transfer of patient data to facilitate patient mobility between clinical institutions
  - Academic research: share scientific know-how and collaborate on large, high impact research studies
  - Education: Joint organisation of workshops on topics of expertise
  - Contract clinical research: joint implementation of state of the art imaging techniques that can be offered as a service

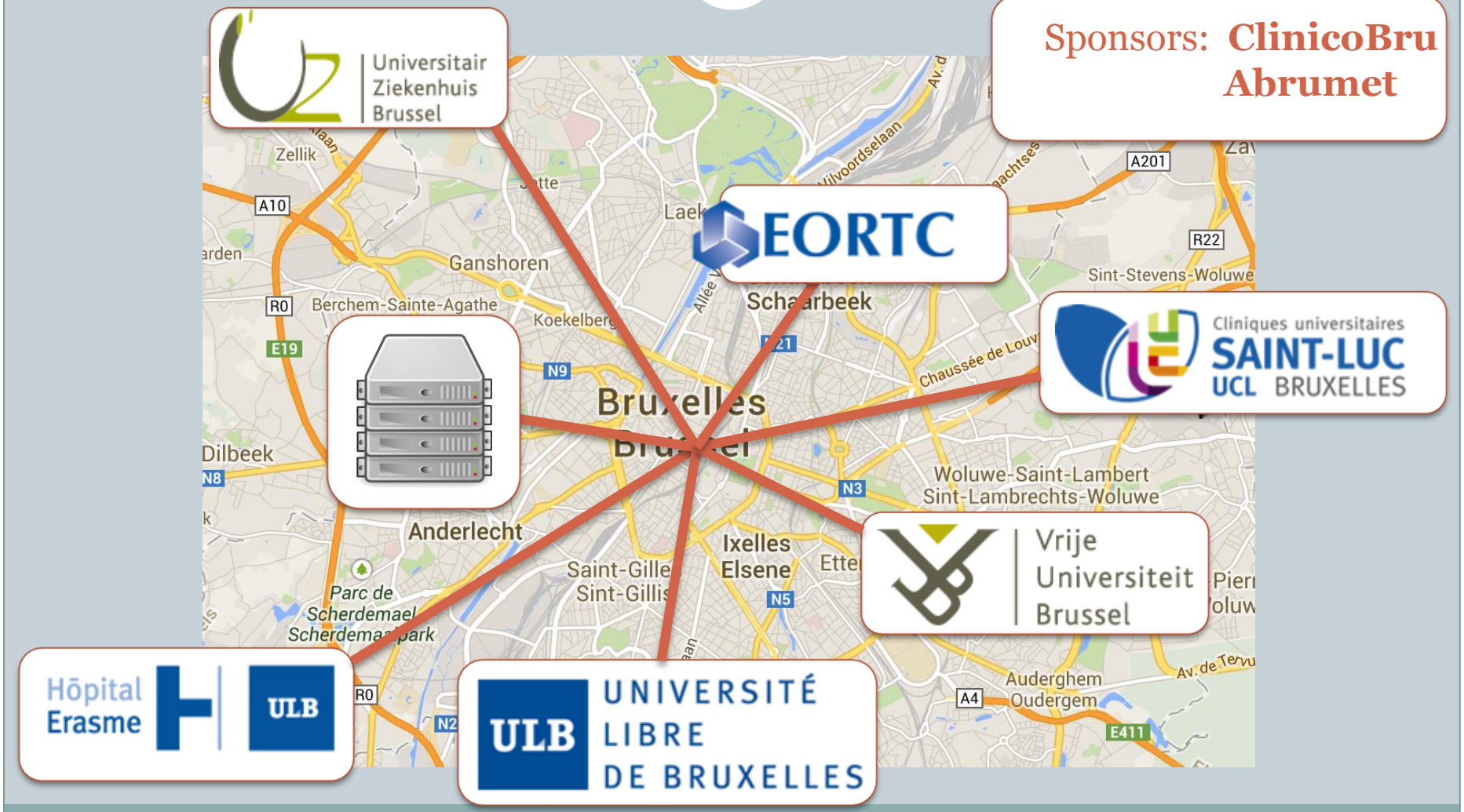
Approach

- Implement and test a collaboration platform
  - Enable exchanging image data between partners

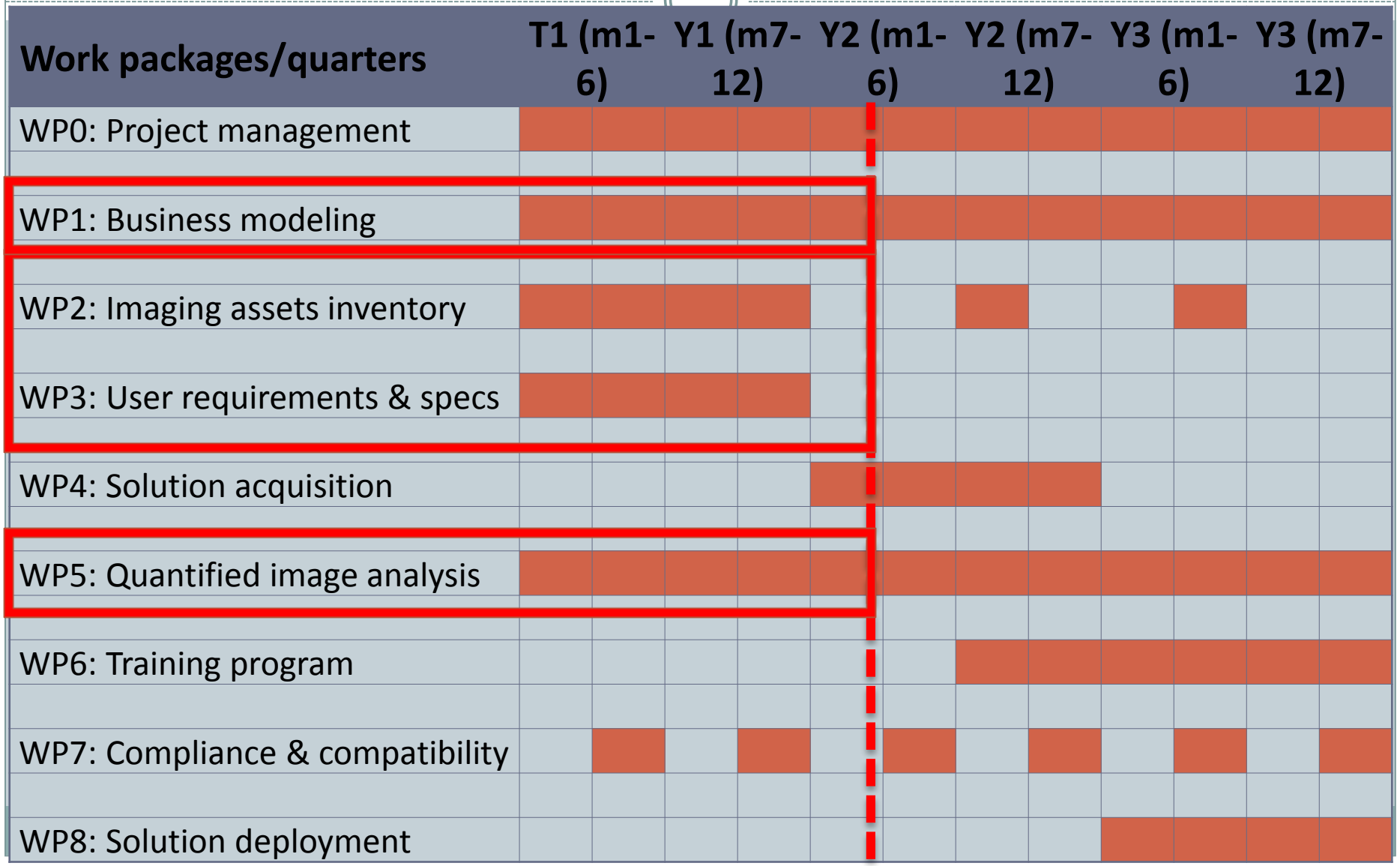


- Perform a case study
  - Co-develop an image analysis application on a high tech topic
  - Conduct a multi-centre academic trial
  - Central image processing & image reading

PICRIB Consortium



Work packages



Medical Imaging Assets

- Results of WP2
  - Identify synergies, redundancies and gaps
- Focus on software high-tech image analysis
  - Some common commercial software packages
    - Could allow cost-saving through license sharing
    - Mechanism remains to be investigated
  - Many in-house developed analysis tools
    - Shows expertise of consortium in a variety of areas

User Requirements and Specifications

- Results of WP3
  - Identify the requirements for the collaboration solution
- Make distinction between
  - Image data containing **patient information**
    - ✓ Typically for clinical care
    - ✧ Access allowed when there is a therapeutic link to the patient
  - **Anonymized** or **coded** image data
    - ✓ For academic or contract clinical research and education
    - ✧ Access allowed for biomedical researchers

Facilitate interoperability for clinical care

- Few applications identified for exchange of clinical data
  - Teleradiology, point-of-care or central license purchase
- IT solutions for patient mobility allows cost-savings
  - Example for UZ Brussel: image transfer for external patients
    - 130k€ / year using DVD printing
    - 80k€ / year using PACSonWeb

➢ Commercial solution for clinical care image sharing

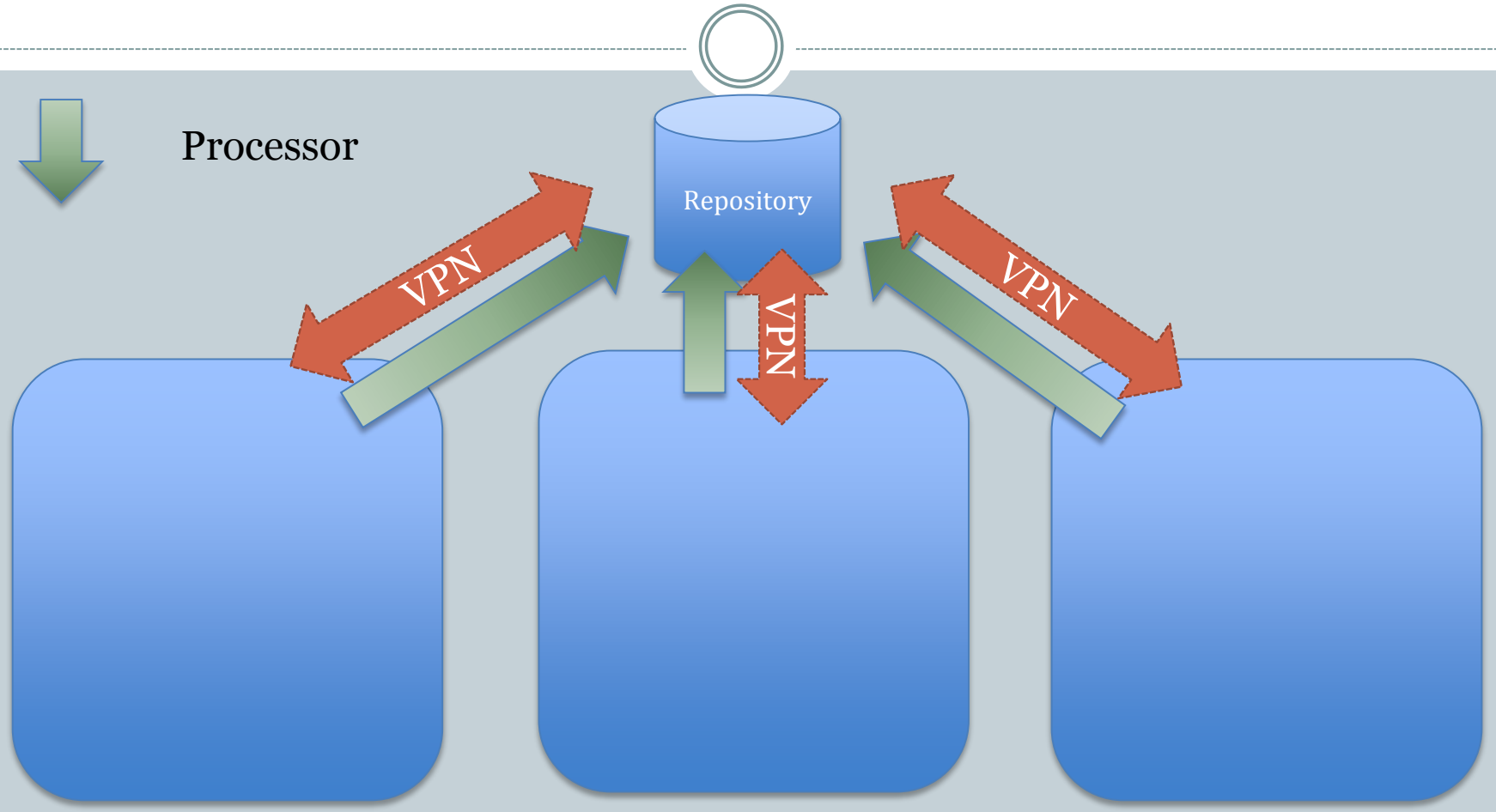
- Verify the requirements for data containing patient information
  - Security, logging and access control, patient matching and insertion
- Ask quotations from at least three companies
  - Ensure compatibility with other institutes and initiatives

Enable collaboration for research and education

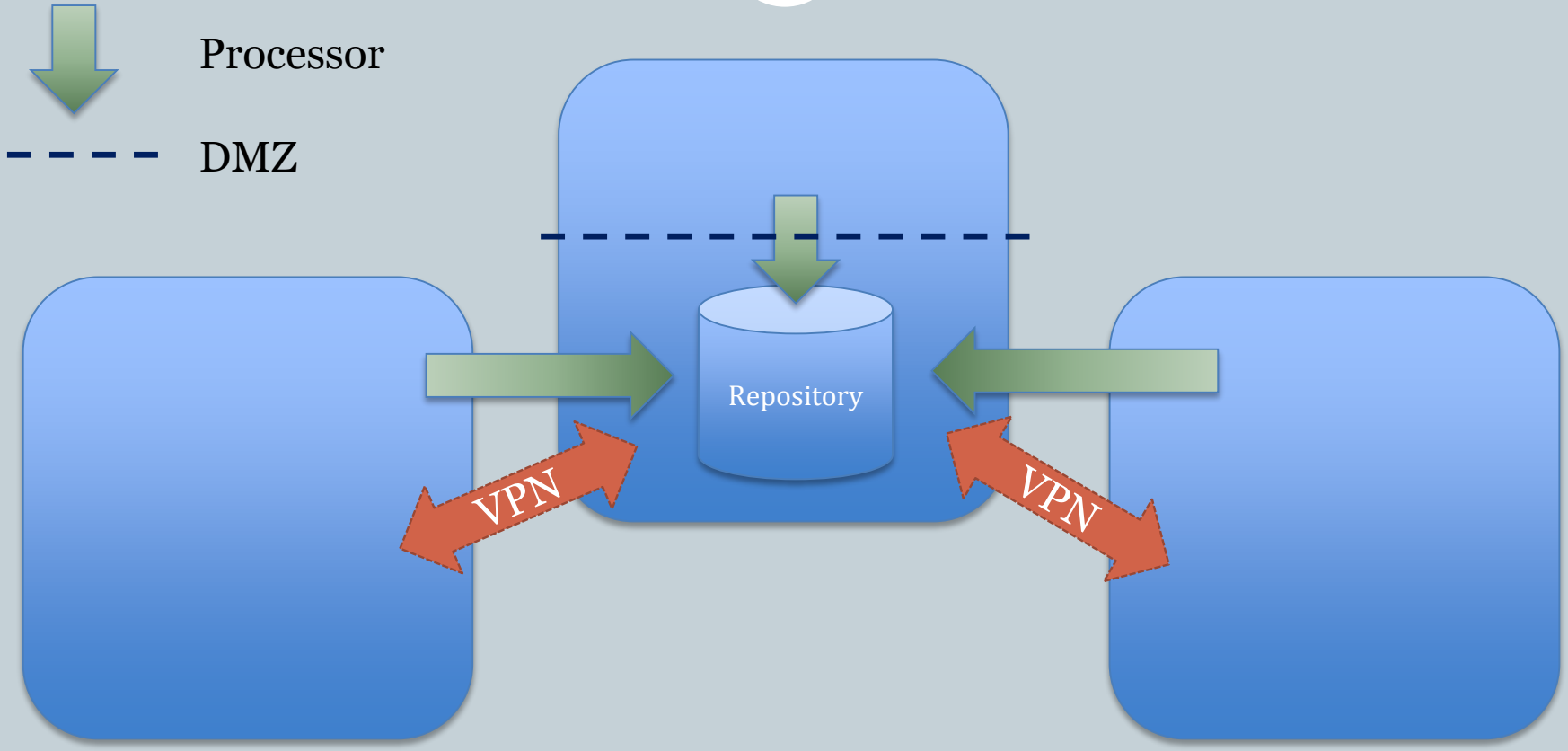
- Many applications in which coded data is transferred
  - Contract clinical research: custom software for each client
  - Academic research & education
- Ensure low maintenance costs
  - Maintain collaboration after PICRIB project

➢ Validated & widely used open-source tools
  - CTP: The clinical trial processor provided by RSNA
    - Compliant and configurable for each study
  - XNAT: free imaging informatics solution for storage & transfer
    - Compatible with BioMedBridges (EU-ESFRI)

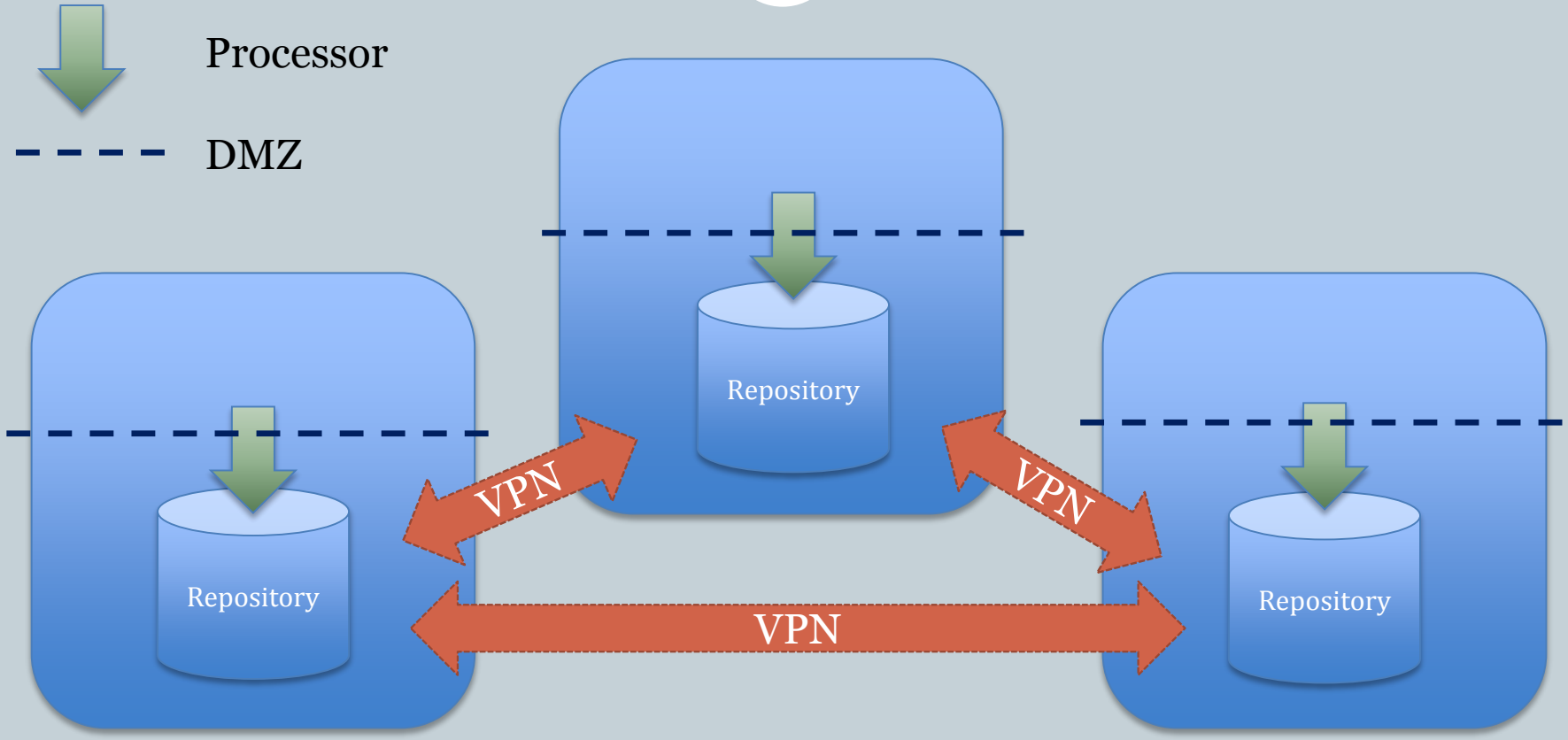
Architecture: central extern



Architecture: central internal

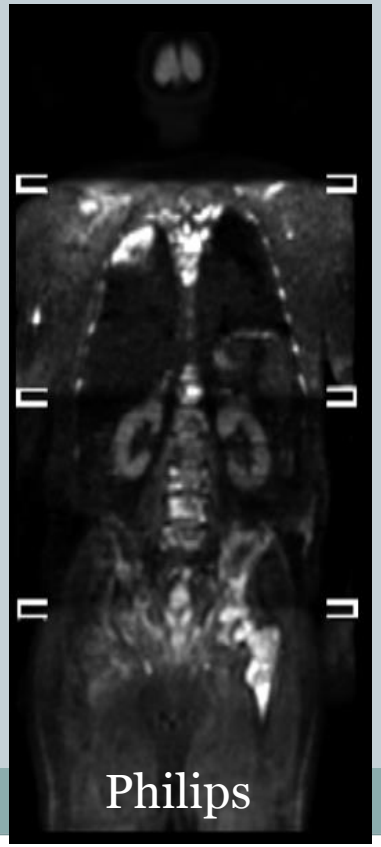


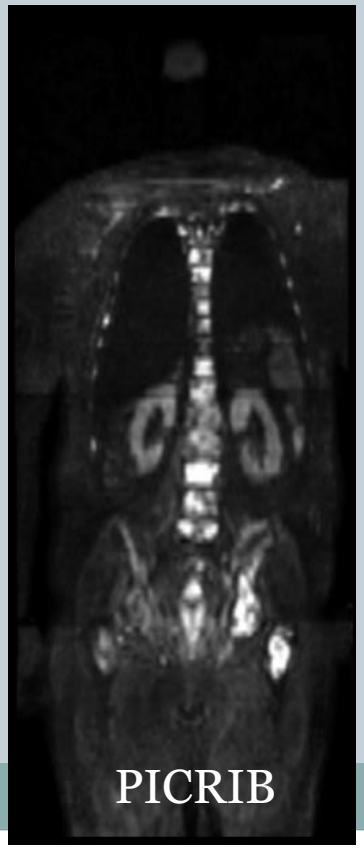
Architecture: distributed



Quantified analysis of Whole-body DW-MRI

- Joint definition of multi-center clinical research
  - Acquisition & study protocol, awaiting ethical committee
- Automated segmentation of bone-metastases





Valorization

- Valorization of the research of WP5
  - Software for automated analysis of bone metastases
    - Based on open-source, but with commercialization possible
      - Plugin in an existing platform for DICOM and PACS support
      - Commercialization via existing distribution channels of Osirix
  - Imaging Core-lab for custom image analysis
    - Service-based model providing quantified analysis
      - Academic and contract clinical research
      - Requires the full support of the consortium

Challenges

- Ethical issues
  - The **platform** requires approval from the ethical committees
    - Clear description of purpose and scope
    - Protocol for data handling and storage
  - Each **study** to be shared on the platform requires approval
    - Regular ethical approval with reference to data sharing
    - Identification of biomedical researchers with access
  - Ambiguous information on handling **coded data**
    - Currently no clear guidelines in the hospitals