

Canon

CANON MEDICAL SYSTEMS DO BRASIL



UNIVERSIDADE
FEDERAL
DE PERNAMBUCO

DCM Uploader: um sistema de informação para garantia de confidencialidade, integridade e disponibilidade no tráfego de imagens médicas baseadas no padrão DICOM

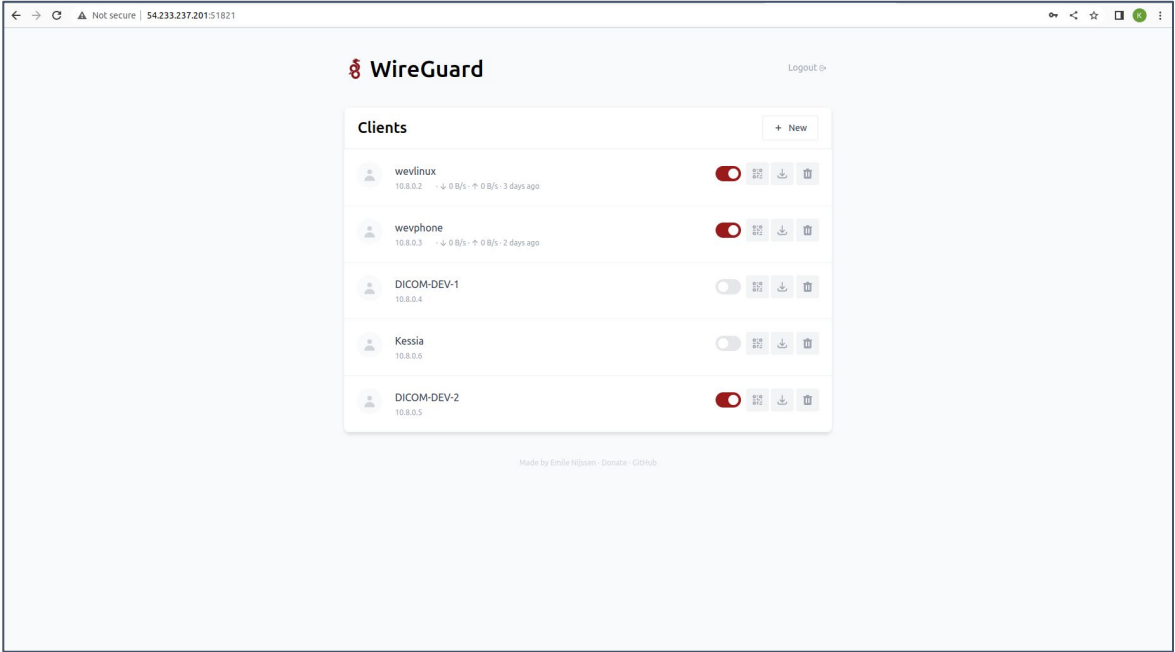
Resultados da Sprint 07

23/05/2023

- Estudo de estratégias de tunelamento para realização da comunicação site-to-site
- Implementação das estratégias/soluções
- Elaboração de novos cenários de testes utilizando o Dcm4chee e Orthanc (considerando as estratégias estudadas e implementadas)
- Otimização dos scripts para execução da solução com o Dcm4chee e Orthanc
- Artigo: Journal of Biomedical Informatics (Link: <https://www.sciencedirect.com/journal/journal-of-biomedical-informatics>)

Resultados - Estudo de estratégias de tunelamento para realização da comunicação site-to-site

- Wireguard



- Wireguard

- Opensource
- Docker
- Criptografia de ponta a ponta
- Zero Configuration



- Dcm4chee
- Orthanc

Resultados Sprint 7 - dcm4chee

✓ medscantrack

> LOCAL6000

> LOCAL6001

> AWS-SP1

> AWS-SP2

✓ AWS-USA

GET :8080/node

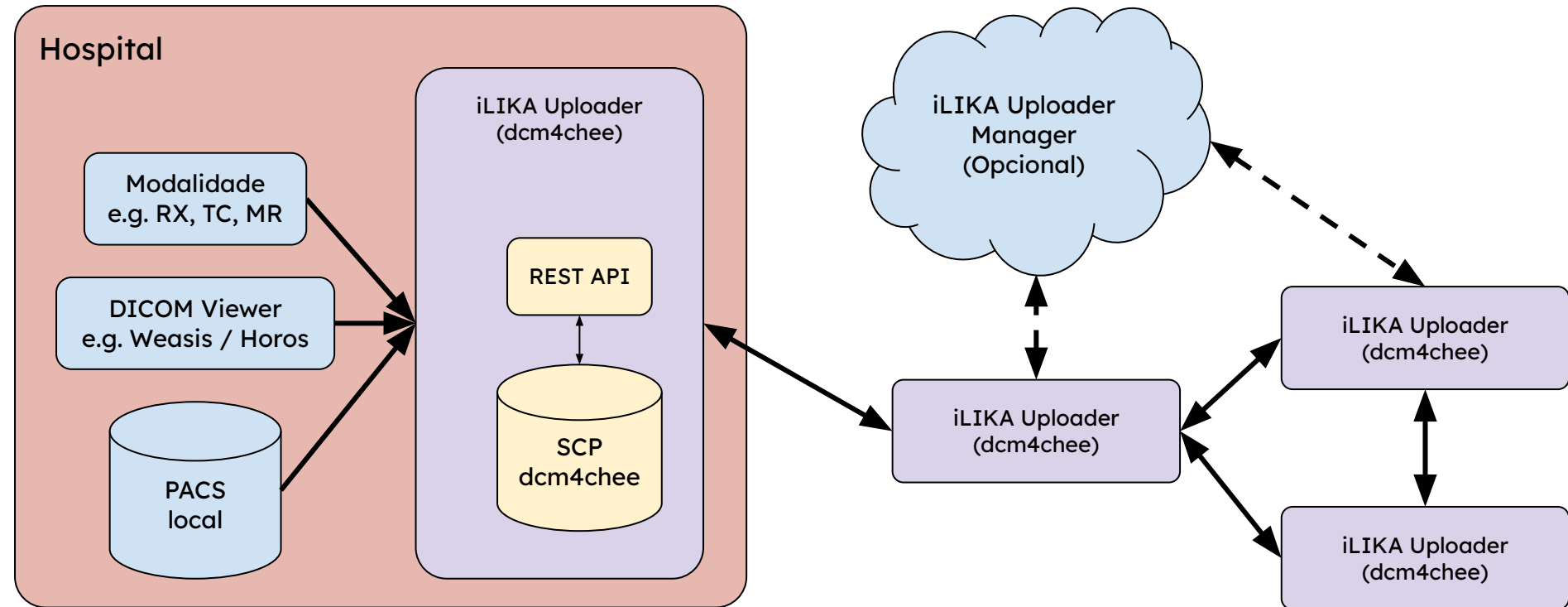
GET :8080/scpfiles

GET :8080/file

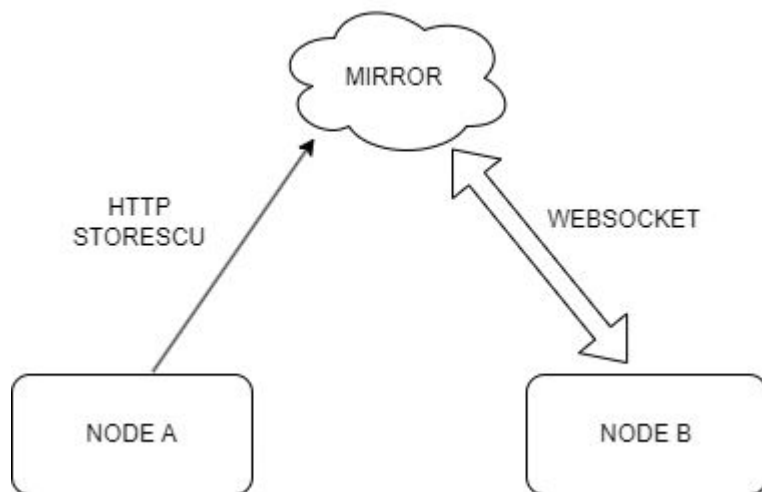
POST :8080/node

DEL :8080/node

DEL :8080/file



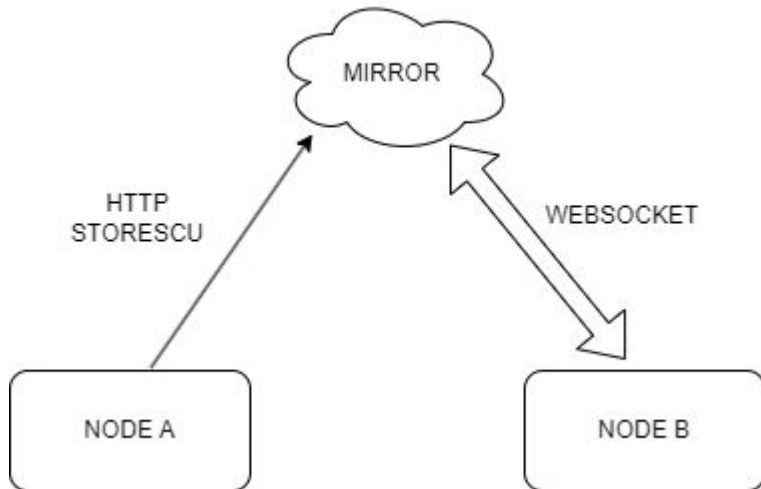
Resultados Sprint 7 - dcm4chee



```
DB is running embedded
Index created: name_1
{
  aetitle: 'LOCAL',
  name: 'LOCAL6000',
  scpport: '6000',
  apiport: '8080',
  wsmirror: 'ws://34.230.35.224:8384',
  scpfolder: 'C:\\canon\\scp6000',
  dbfolder: 'C:\\canon\\db6000',
  _id: ObjectID { id: 2 },
  nodes: [
    {
      host: '34.230.35.224',
      scpport: '6060',
      apiport: '8383',
      name: 'LOCAL6001',
      apiprotocol: 'http',
      _id: [ObjectID]
    }
  ]
}
Attempting to connect WS
API is running on port 8080
SCP started at LOCAL:6000
WS connected
SCU C:\canon\scp6000\34.230.35.224_6060 --> LOCAL@34.230.35.224:6060 [1 files]
done in 3.29s
```

Resultados Sprint 7 - dcm4chee

```
AWS-USA
medscanmirror-medscanmirror-1 | 12:10:05 0|mirror | WS: mtgk4oo1 -> registered. authorization: Bearer LOCAL name: LOCA
medscanmirror-medscanmirror-1 | 12:12:13 0|mirror | WS: cx1glzhe -> closed
medscanmirror-medscanmirror-1 | 12:23:16 0|mirror | WS: i8p4wsoj -> connected
medscanmirror-medscanmirror-1 | 12:23:16 0|mirror | WS: i8p4wsoj -> registered. authorization: Bearer LOCAL name: LOCA
medscanmirror-medscanmirror-1 | 12:23:18 0|mirror | WS: mtgk4oo1 -> closed
medscanmirror-medscanmirror-1 | 12:23:19 0|mirror | WS: 5labntpq -> connected
medscanmirror-medscanmirror-1 | 12:23:19 0|mirror | WS: 5labntpq -> registered. authorization: Bearer LOCAL name: LOCA
medscanmirror-medscanmirror-1 | 12:23:54 0|mirror | WS: i8p4wsoj -> closed
medscanmirror-medscanmirror-1 | 12:24:03 0|mirror | WS: 5labntpq -> closed
medscanmirror-medscanmirror-1 | 12:25:30 0|mirror | WS: zgml149d -> connected
medscanmirror-medscanmirror-1 | 12:25:30 0|mirror | WS: zgml149d -> registered. authorization: Bearer LOCAL name: LOCA
medscanmirror-medscanmirror-1 | 12:25:33 0|mirror | WS: s9jxy4hs -> connected
medscanmirror-medscanmirror-1 | 12:25:33 0|mirror | WS: s9jxy4hs -> registered. authorization: Bearer LOCAL name: LOCA
```



```
DB is running embedded
Index created: name_1
{
  aetitle: 'LOCAL',
  name: 'LOCAL6001',
  scpport: '6001',
  apiport: '8081',
  wsmirror: 'ws://34.230.35.224:8384',
  scpfolder: 'C:\\canon\\scp6001',
  dbfolder: 'C:\\canon\\db6001',
  _id: ObjectID { id: 2 },
  nodes: []
}
Attempting to connect WS
SCP started at LOCAL:6001
API is running on port 8081
WS connected
```


Resultados Sprint 7

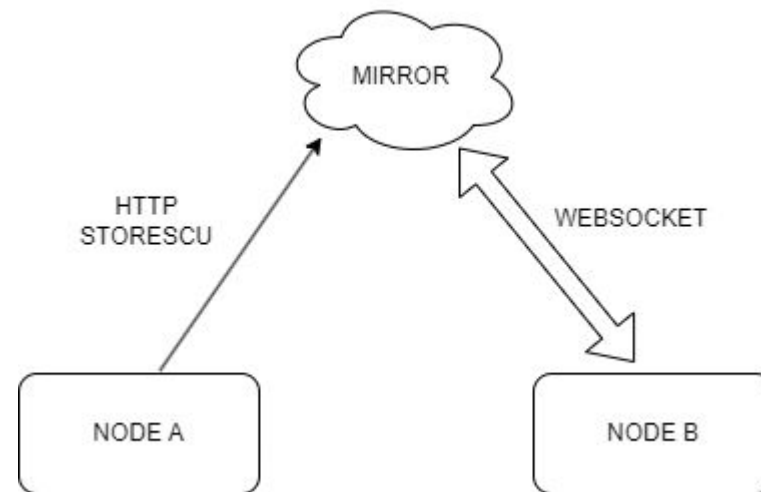


PRÓS

- solução pronta e testada
- fácil configuração
- camada extra de segurança

CONTRAS

- dúvidas quanto a escalabilidade
- obriga todos os nós a participarem da VPN
- ponto único de falha
- performance: possível gargalo



PRÓS

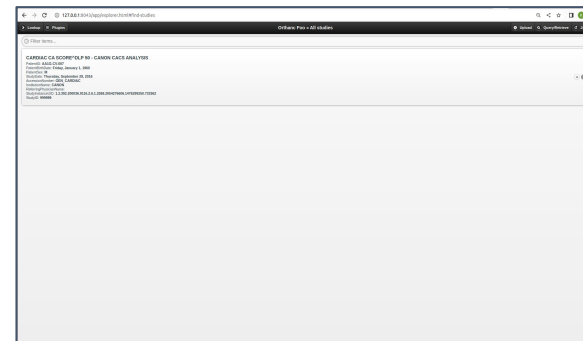
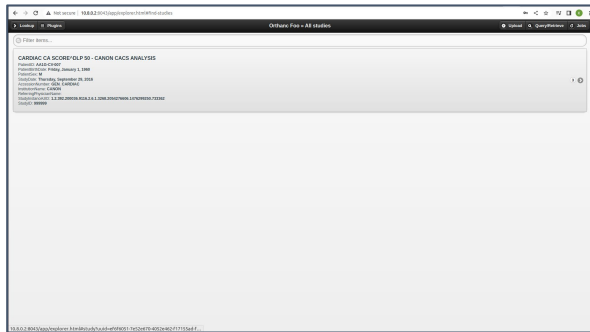
- apenas tráfego local
- sem ponto único de falha
- não exigido para o funcionamento da rede

CONTRAS

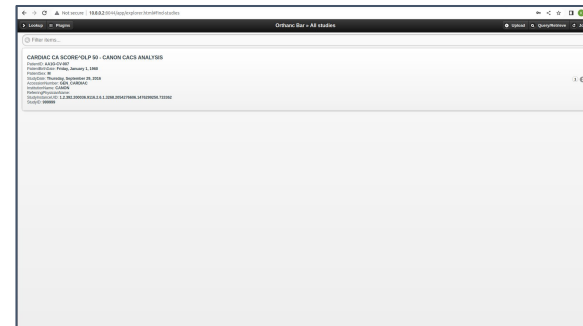
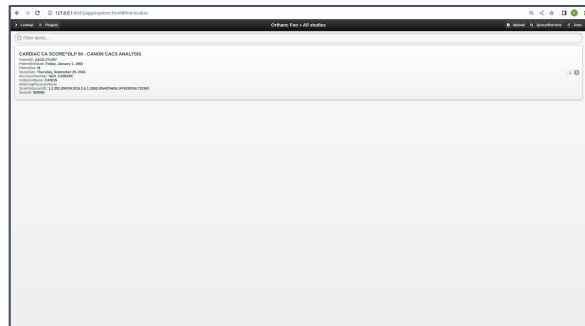
- esforço de implementação e testes
- sem suporte da comunidade

Resultados - Implementação das estratégias/soluções

- Orthanc
 - Recebendo



- Enviando



- Dcm4chee
 - Maquina local > Maquina Local
 - Maquina local < Maquina local
 - Maquina local > DICOM-DEV-1
 - DICOM-DEV-1 > Maquina Local
- Orthanc
 - Maquina local > Maquina Local
 - Maquina local < Maquina local
 - Maquina local > DICOM-DEV-1
 - DICOM-DEV-1 > Maquina Local

- Criação de um ambiente de configuração mínima para validação
- Um único script para execução
 - Realiza as configurações necessárias
 - Sobe o docker
 - Configura o ambiente

- Performance: Dcm4chee e Orthanc
 - Analise comparativa

← → ↻ sciencedirect.com/journal/journal-of-biomedical-informatics

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- Otimização das soluções (Dcm4chee e Orthanc) para os cenários validados
- Testes de desempenho considerando toda a estratégia estabelecida durante a implementação das soluções