

DIAGNOSTIC IMAGING IT

TAP INTO THE FULL POTENTIAL OF CLOUD-NATIVE SOLUTIONS, WITH PACSonWEB

CLOUD NATIVE, WEB-BASED MEDICAL IMAGING TECHNOLOGY

PACSonWEB, A DEEPUNITY SOLUTION

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EVOLUTION OF PACS

For many healthcare institutions, infrastructure and budget considerations can slow down the implementation of new technologies.

But with the introduction of cloud native PACS, it is possible to add new and **innovative capabilities**, in a **cost-effective** way and with very limited impact on IT resources and infrastructure.

Cloud native PACS provides full PACS functionality **anytime, anywhere**, with multiple options for viewing and study sharing, significantly expanding the scope – and definition – of what a PACS can do.



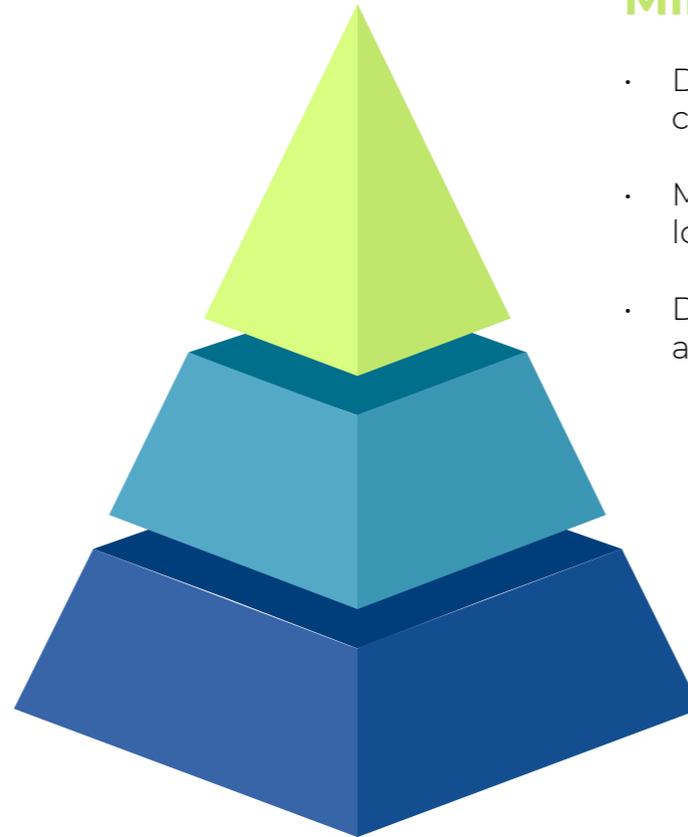
FACING DIAGNOSTIC IMAGING CHALLENGES

The complexity of diagnostic imaging today pushes healthcare institutions to improve their efficiency in their routine.

A successful PACS should:

Stop siloed workflows, by:

- Transforming patient care through accessible, sharable, and secure imaging data;
- Enhancing effectiveness of image exchange across all the healthcare organizations;
- Consolidating fragmented and geographically distributed radiologist expertise.



Minimize financial pressure, by:

- Decreasing costs and inefficiencies linked to complex on-site architecture and local IT teams;
- Minimizing costly and tedious integrations between local RIS, PACS and EMR solutions;
- Diminishing operative inefficiencies in daily activities (e.g. stop distributing results via CD/DVD).

Tighten security, by:

- Keeping enterprise and departmental solutions secure, while at the same time remotely accessible;
- Constantly monitoring Diagnostic imaging IT systems to identify security vulnerabilities;
- Maintaining radiology applications updated, avoiding periodic and capital-draining hardware upgrades.

SOLUTION

UNLEASHING THE FULL POTENTIAL OF CLOUD

PACSonWEB is a cloud native software, designed, developed, and deployed in the cloud. Our pacs solution allows you to distribute, share and visualize medical images and reports, over the internet, to requesting physicians and patients and across hospitals. In unison, it is a cloud archive and full-blown diagnostic pacs solution.

PACSonWEB has been designed to guarantee:

Clear financials

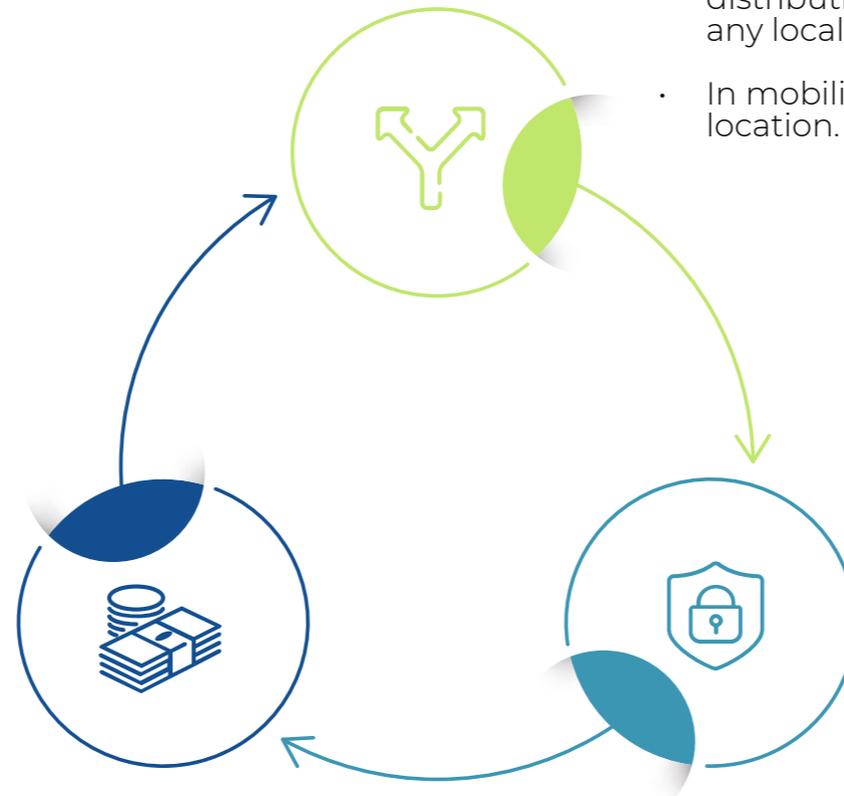
- No large investments required in depreciable assets and local data centers;
- Reduce operational costs, maintenance, integration and upgrade expenses;
- Managed as software-as-a-service, in a pay-per-use model.

Greater flexibility

- In meeting IT needs in terms of hardware, software, and configuration tools;
- In adopting cutting edge technologies for sharing, distributing studies, because our PACS is independent of any local infrastructure and platform;
- In mobility; radiologists are no longer tied to a particular location.

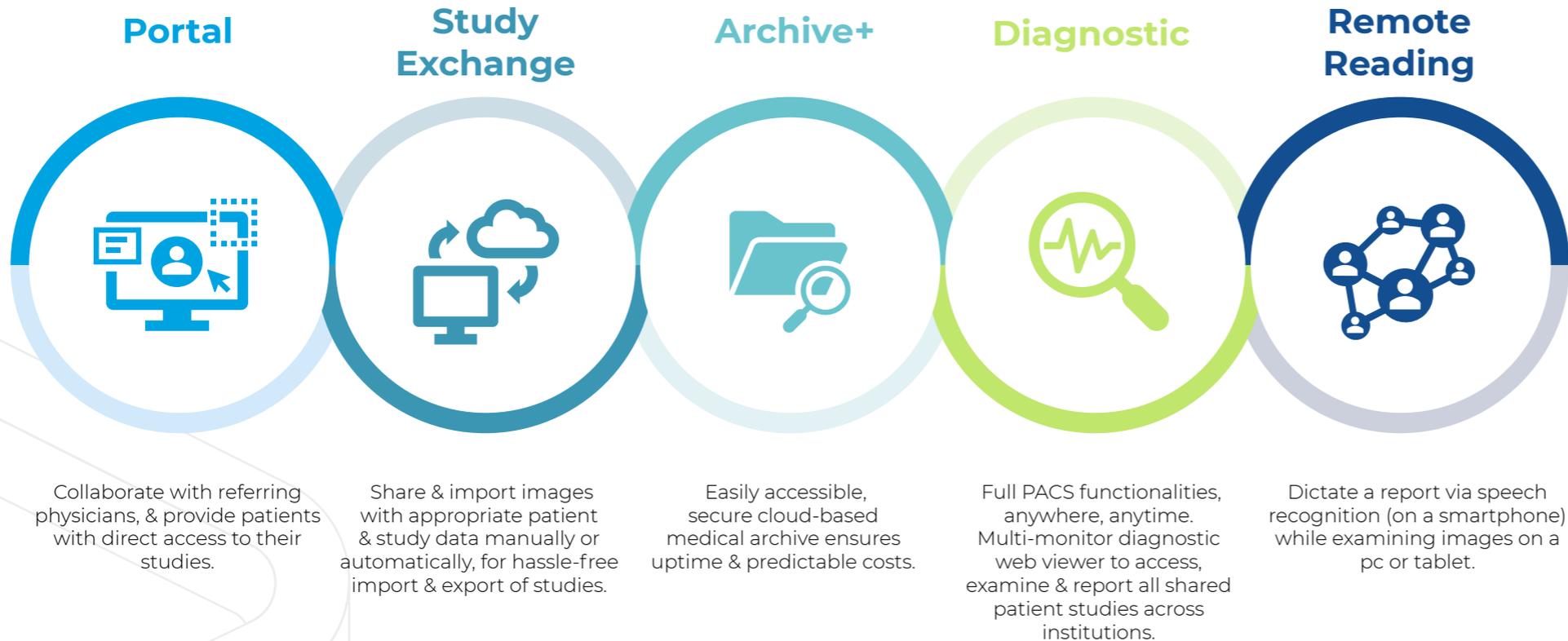
Enhanced security

- Create a secure back up of data, away from the primary location;
- A constant, focused 24/7 monitoring and record-keeping;
- Uniform, high level of security, privacy controls improved over time, with no additional capital expenditures.

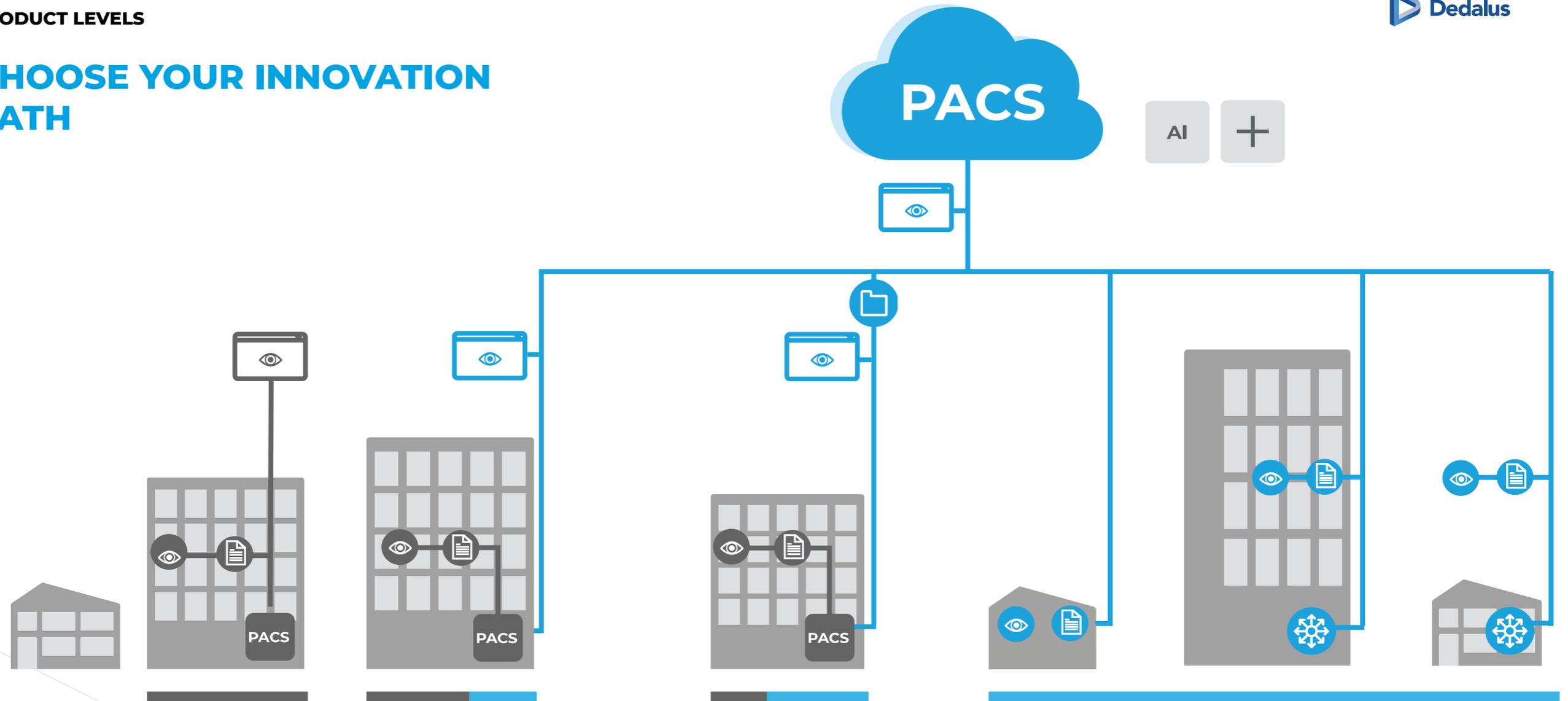


WORKFLOWS

PACSonWEB provides patients and healthcare professionals with secure, fast and easy access to medical imaging information. Based on a unique centralized cloud architecture. PACSonWEB uses one imaging system to organize and control the entire value chain of medical imaging.



CHOOSE YOUR INNOVATION PATH



Enterprise imaging silo

The Start:
A Basic Enterprise Imaging Silo

The start to increase your service and to start collaborating in a care network

Adding a cloud layer

Step 1:
Add a cloud layer.

Cloud archiving

Step 2:
Move & archive your data to the cloud.
This will lower your costs and decrease your dependence on your local PACS.

Replace your PACS and share all PACS functionalities with other facilities

Step 3:
Replace your PACS with PACSonWEB.
In this phase, we complete the process of tailoring the workflow to your needs, including selecting your preferred AI tools and hanging protocols.

VALUE

NOT A TRADITIONAL PACS

Portal

- Allows direct collaboration with referring physicians
- Provides patients with direct access to their studies, and eliminates CDs and DVDs
- Increases staffing flexibility through easy access

Study Exchange

- Fast sharing of results with other institutions
- Effortless participation in regional screening programs or collaborations
- Allows manual or automatic study exchange incl. predefined rules
- Ensured protection of patient privacy

Archive+

- Predictable, effortless, cost-effective scale-up of archiving infrastructure
- Secure & scalable archives framework
- Streamlined cloud-based medical archive

Diagnostic

- Multi-monitor diagnostic web viewer
- No VPN needed to work inside or outside hospital walls
- Wide range of tools such as various measurements and MIP/MPR
- Smart hanging protocols for faster reading, including relevant priors
- Smart worklists & tools (e.g. quick learning study relevance)
- Integrations with 3D visualization & AI

Remote Reading

- Full functionality with PACSonWEB viewer without a VPN or IT infrastructure
- Use smartphone or PC headset to dictate a report via speech recognition
- Report studies anywhere, anytime

Lengenda

- Lower costs
- Smoother workflow
- Higher Security
- Time saving
- Anytime, anywhere on any device

*It is the responsibility of the user to assure that the monitor quality, ambient light and used image compression is in line with the intended clinical usage.

FEATURES

GET THE BENEFITS

Shared workflow:
consolidated worklists
across healthcare facilities
for authorized users



Always on the
latest version,
always up-to-date



No installation
required, **true**
zero footprint



Native
cloud



Establish cross-hospital
collaboration, reporting
& patient timelines



Smooth lossless
viewer optimized
for high-latency/low bandwidth
connections



Excellent user
experience on any
device, anywhere
& anytime



Secure
& compliant
by design



Multi-language
support



A single solution for
all end users: patients,
referring community,
radiologists and IT



NUMBERS

PACSonWEB IN USE

290
medical imaging
departments

18.500.000
images processed per day

7
countries

80.000
users logins per month



COPING WITH RISING DEMAND



“

We wanted a solution that gave everyone access to image data online, from referring physicians to patients. But it turns out there aren't many robust solutions like that on the market, he says. Some solutions only have a referral portal, but we also wanted patients to be able to access the image data.

”

Watch the video



Dr. Michael Knölker, Radiology Landau-SÜW, Germany

Issue

Dr. Michael Knölker, radiologist, co-owner and head of IT for **Radiology Landau-SÜW**, needed to find a way to **streamline image distribution** and support the fast pace of growth at his busy group practice, which **was burning 1,600 CDs a month at its two clinic locations**.

Solution

After an in-depth review of providers and solutions, Radiology Landau-SÜW opted for PACSonWEB from DOBCO Medical Systems (subsidiary of Dedalus HealthCare). The criteria supporting the choice included the **easy-to-use portal** for patients and referring doctors, the extremely stringent **security**, and **full support for all users**.

Effect

Now that the new image distribution process is in place, the radiologists and staff at Radiology LandauSÜW have more time for patients, and it's now much easier for everyone who needs images to access them.

EXPANDING INTO NEW PARTNERSHIPS & BUSINESSES



Dr. Martin Simon, Radiologische Allianz

“

For example, for one year we have been providing radiological and nuclear medical care with our network for LungenClinic Grosshansdorf in Schleswig-Holstein, an internationally recognized specialist clinic for all diseases of the lungs and respiratory tract. PACSonWEB has also greatly simplified this new collaboration across federal states.

”

Issue

At the locations of **Radiologische Allianz Dr. Martin Simon** Simon kept being encumbered by the outdated CD workflow. Dr. Martin Simon says **“Not only did this CD-based workflow cost us a lot of money and material, but also valuable time because the medical technical assistants needed to walk to the CD burner, burn the CD, print it and then hand it out to the patient after each examination.”**

Solution

Radiologische Allianz quickly decided in favor of PACSonWEB (Portals) **“PACSonWEB makes it much easier for us to integrate radiology images into the treatment path and also increases their visibility.”**

Effect

Radiologische Allianz continues to expand its network of referring doctors and clinics, which includes many long-standing partnerships, based on trust through quality. **“Since we implemented PACSonWEB at our locations, we have been able to work together with our medical partners much faster and easier also in a digital way,”** says Dr. Simon.

EXPANDING EFFICIENCIES & BUSINESS OPPORTUNITIES FOR RADIOLOGY PRACTICES WITH CLOUD-BASED SOLUTION



Stefan Kraus, Computer scientist, PSG

“

Cloud technology has made excellent progress recently and is used much more frequently. For the future, it would be great if we could also use innovative cloud-based solutions like PACSonWEB as a long-term archive for radiological images – either as an additional backup or mirror solution for the local image archive, or by eventually fully replacing it.

”

Issue

Stefan Kraus, a **computer scientist** who has worked as an IT manager for PSG (Praxis-Service-Gesellschaft GmbH) since 2009 asked himself: **How can we – in spite of increasing staff shortages and number of patients – use innovative solutions to take the burden of all non-medical tasks away from the doctors and radiology technicians.**

Solution

As a cloud native solution, PACSonWEB does it exactly that. It offers doctors a wealth of advanced features that allow them to much more quickly, flexibly, and efficiently view and evaluate radiological images. **“A doctor can quickly and easily compile an album with selected radiological images – for example, if he or she is participating in a special study with his or her department, or visiting a tumor conference and wants to present a set of single or follow-up images there,”** explains Mr. Kraus.

Effect

“With PACSonWEB, radiology practices can temporarily or permanently provide teleradiology services for other practices or clinics, even if these are hundreds of kilometers away. This also opens up other potential new business areas like providing pseudonymized and anonymized data in conformity with GDPR to AI providers for secondary use, for example for educational purposes, or to further develop AI,” says Mr. Kraus.

SPEED, EFFICIENCY AND COST BENEFITS FOR VISIORAD



Dr. Maik Jörgensen, VISIORAD

“

During a vacation abroad, someone from my private circle had an accident and needed to undergo a radiological examination. Even though I was thousands of miles away, I was able to easily view his images in the clinic's cloud-based PACS system with a personal online access code – immediately after the images had been created. I was totally excited about this time advantage and how simple and intuitive it was for me to display the images and findings report in my browser. This incident opened my eyes, and I was convinced that VISIORAD could also benefit from such a cloud-based PACS solution.

”

Issue

For Dr. Maik Jörgensen at VISIORAD, the speed and efficiency benefits of digitization were the primary goals in implementing the PACSonWEB web-based PACS solution.

Solution

The German healthcare system still has a long way to go to catch up with the emerging and ever-growing digitization needs, particularly in radiology, says Dr. Jörgensen. “In the examining clinics and practices, too many processes are still carried out with outdated, non-digital means like snail mail or fax,” he says.

Effect

By implementing PACSonWEB, VISIORAD has not only been able to reduce its time effort and cost burden, but also significantly shorten the time patients need to spend at practice locations. Now patients can leave immediately after the radiologic examination, instead of spending more time in the waiting room while their CD is being burned. In addition, the referring orthopedist, oncologist or neurologist already has all images at his or her disposal when the patient arrives at their practice again, and can usually also access the associated report in the same system within 30 minutes.

TECHNICAL DETAILS

COMMUNICATION GATEWAY

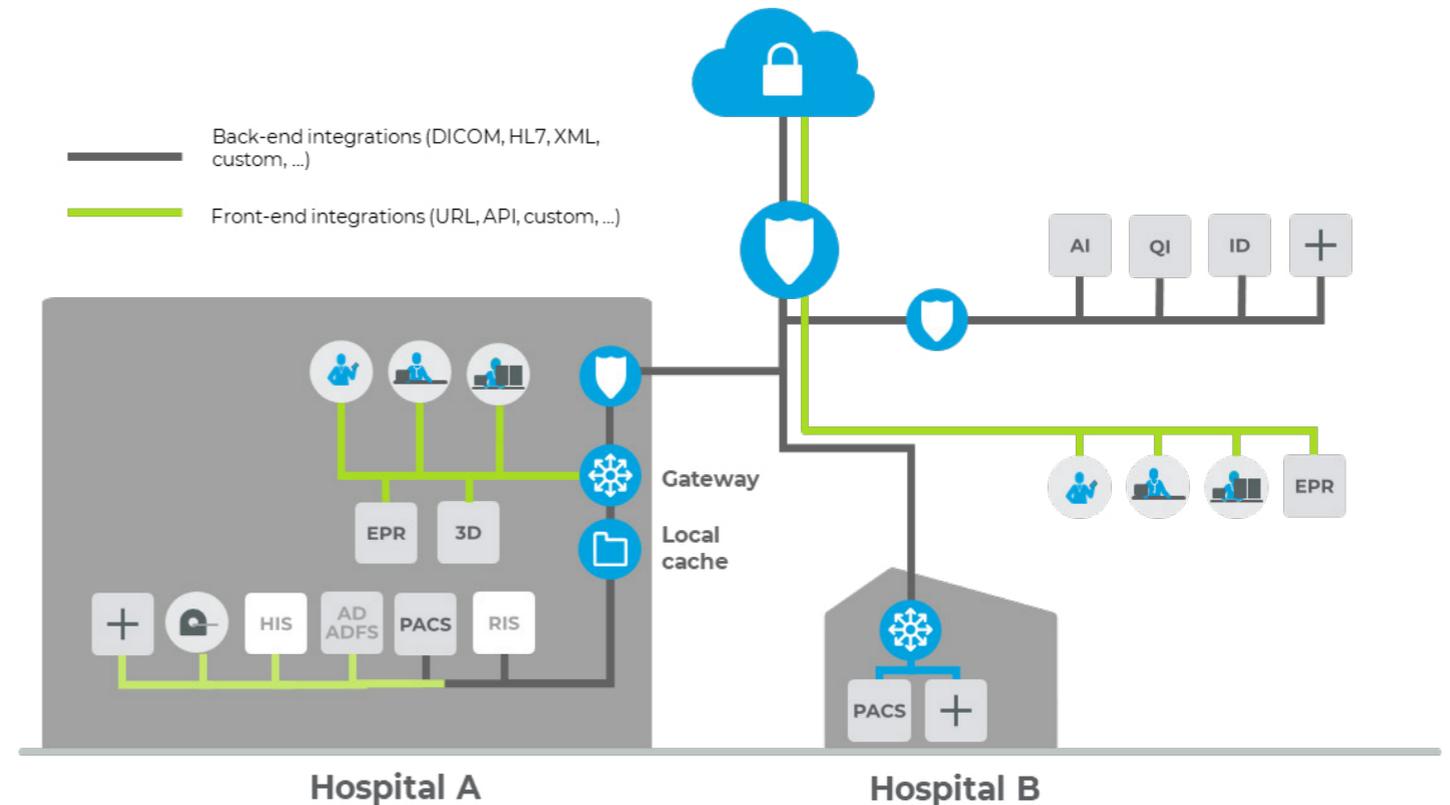
The entire network path between the source (customer) and the cloud is encrypted using TLS (Transport Layer Security). The encryption uses an RSA key of 2048 bits via a recognized certificate. All incoming and outgoing traffic is controlled by firewalls.

Data synchronization between source and cloud (apart from images):

Communication between the gateway and the cloud is based on Windows Communication Foundation (WCF). This makes it possible to securely communicate asynchronously within a service-oriented environment: Microsoft framework.

This means:

- No need for a direct connection from the gateway to the central database, or to other cloud resources (storage paths, ...);
- Two separate domains / networks remain (hospital <> cloud) that do not have access to each others' resources and with no security risk;
- Encrypted traffic between the hospital and the cloud. VPN connection is not required;
- Communication can be over lower bandwidths, so there is no risk of interruptions, or time-outs, and it is high latency-proof.



TECHNICAL DETAILS

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TECHNICAL DETAILS

GATEWAY REQUIREMENTS

The gateway provides communication with the cloud, integration with the various internal systems and the caching of data if necessary. These are the hardware requirements:

Hardware Requirements			
	<10k studies / yr	<200k studies / yr	>200k studies / yr
CPU	1 vCPU 2 GHz	2 - 4 vCPU 2GHz	4 - 6 vCPU 2Ghz
RAM	6 GB	12 GB	18 GB
Operating System	Windows 10 / Windows Server 2012 R2 and higher	Windows Server 2012 R2 and higher	Windows Server 2012 R2 and higher
-	Regular Windows updates are highly recommended.		
System disk (C:)	OS recommended (min 50GB)		
Data disk (D:)	50 GB	100 GB	100 - 200 GB
Local Cache	Optional. Dependent on #years #TB/year production		
Database requirements			
-	Preferred: SQL Server on customer infra / Possible: SQL Express on gateway	SQL Server on customer infra	
Supported SQL versions			
Bandwidth	Min +50 Mbit, recommended 85-100 Mbit		

SECURITY

PACSonWEB has been designed to align with the most stringent security requirements:

Certifications

DOBCO medical system, a Dedalus company is certified with ISO27001, ISO13485 and fully HDS-certified. PACSonWEB is a class IIa CE certified medical device. PACSonWEB portal is rated A+ on SSL Labs.

Protection from data loss and recovery is guaranteed and several security procedures and methods have been installed.

Privacy Policy

DOBCO Medical Systems, a subsidiary of Dedalus HealthCare, takes privacy very seriously. We treat all personal information in confidence, according to national and international legal requirements.

DOBCO Medical Systems, A Dedalus Company guarantees that all personal data will be processed in accordance with the General Data Protection Regulation (GDPR), Regulation 2018/1725.

TECHNICAL DETAILS

SECURITY MEASURES

All processes within DOBCO Medical Systems, a Dedalus Company are related and validated within the ISO27001 framework.

Below you'll find an overview of the measures we take to keep the data safe and protected:

The entire network between source and end user is fully **encrypted by a Transport Layer Security (TLS) encryption protocol.** The encryption uses an RSA key of 2048 bits via a recognized certificate.

Every PACSonWEB data center is ISO27001 and (at least) BORG class 3 certified. The location of the data center is dependent on the local legislation of a country: in general, the data is stored in a data center within the European Union following the European rules regarding cloud storage of patient data. If required (by local legislation), **the data is stored in a data center within the country itself. The data is only accessible to authorized DOBCO Medical Systems, a Dedalus Company personnel for support purposes, using multi-factor authentication. No third parties can access data.**

All actions on the PACSonWEB platform are logged, and mechanisms are in place to intercept frequent login attempts and block the account or IP addresses. Internal and external audits are conducted periodically to ensure security. Customers of DOBCO Medical Systems, a Dedalus Company can access these reports. Several safety procedures are available and maintained such as a business continuity plan, a backup plan, etc., to ensure a secure environment.



SERVICES & SUPPORT

OUR SUPPORT

Support is provided to everyone in your network requiring access to images, from patients to clinicians to referring GPs.

24/7 With **24/7 support for customers, a helpdesk for all users,** and educational and adoption programs to help your various users learn everything that PACSonWEB can do.



A remote connection is always necessary to provide support. The Help Desk remotely assists the customer in resolving installation and configuration problems.



Helpdesk support in local language. All end users can contact our helpdesk for support in their own language. Our phone number and email address are available on the support pages.



The Service Desk is the Single Point of Contact for the customer, providing customers with a main line regardless of issues.



Monitor activities on **Central components:**

- IIS Server: Hard disk usage, ASPState table, Website availability and Global System Performance
- WCF Server: Hard disk usage and Global System Performance
- DICOM interface: Hard disk usage and Global System Performance
- MS SQL Server database: Hard disk usage and Global System Performance, backups
- Storage Server: Server database: Hard disk usage, Global System Performance and backups
- Incoming images processor: Server database: Hard disk usage and Global System Performance



Monitor activities on **Gateway components:**

- IIS Server: Hard disk usage, ASPState table, Website availability and Global System Performance
- WCF Server: Hard disk usage and Global System Performance
- DICOM interface: Hard disk usage and Global System Performance
- MS SQL Server database: Hard disk usage and Global System Performance, backups



Dedalus

Life flows through our software

ABOUT DEDALUS

Dedalus is the leading healthcare and diagnostic software provider in Europe and one of the largest in the world. With its innovative framework of comprehensive and process-oriented solutions, Dedalus enables a revolutionary digital transformation of country-wide Healthcare Systems fully supporting the patient digital journey. Dedalus serves more than 6,100 private and public hospitals across 40 countries, through more than 6,500 highly specialised resources, of which 2,000 are dedicated to R&D activities. We aim to help caregivers and healthcare professionals deliver better care to the communities they serve and for this reason we are very proud of doing a special job, working with healthcare organisations to improve healthcare outcomes for patients.

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