TECBRA Telehealth Solutions and Oracle
100% Web-Based PACS for Instant Remote Access to DICOM Images
To enable healthcare providers to make medical image data accessible wherever it is needed, TECBRA Telehealth Solutions has developed its Eclipse suite of 100% Web-based, DICOM-compliant PACS solutions. The Eclipse suite includes:

**Eclipse Radiology PACS**: A comprehensive PACS software solution with state-of-the-art certified diagnostic viewers powered by Alma that captures, stores, manipulates and distributes, via the internet, any radiology image created with the DICOM standard. Diagnostics can be performed over the web from remote locations using any connected computer. Images can be compressed up to 40x and transmitted instantly with no loss of quality, reducing diagnostic times from hours or days to just minutes.

**Eclipse Radiology Home Workstation**: A personal workstation with state-of-the-art certified diagnostic viewers powered by Alma for home-based physicians or specialists serving multiple institutions. Fast transmission of compressed DICOM images eliminates the costs and delays associated with film, reducing diagnostic times from hours or days to just minutes.

**Eclipse Hemodynamic PACS**: A 100% web-based PACS solution that enables heart physicians and patients to access medical exams and results in real time, even while travelling. Secure access codes for physicians and patients ensure information confidentiality and integrity.

**Eclipse All-in-One**: An integrated solution combining the functionality of Eclipse Radiology PACS and Eclipse Hemodynamic PACS, presenting a cost-effective proposition for organisations operating in both fields.

**Eclipse Octopus Community PACS**: An integrated solution that creates a virtual community PACS from a network of individual PACS, connected via the internet and made accessible via a web portal. A central database of medical images enables easy access to exams and eases user management. It also creates an additional level of security and integrity for images and exams and facilitates back-up operations. Dynamic and adjustable compression algorithms are included in the solution kernel, enabling a perfect fit between communications load and physicians’ needs without diagnostic loss.

Eclipse Octopus Community PACS is ideal for organisations that operate medical imaging equipment in different locations. For multinational organisations, it can be used to create a single global PACS from multiple national Eclipse Octopus Community PACS.

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As medical imaging becomes increasingly important to the delivery of effective healthcare, new technologies are required to manage, store and share complex images so that they can be accessed by anyone who needs to use them. TECBRA Telehealth Solutions has used Oracle technology to create a suite of 100% Web-based, DICOM picture archiving and communications (PACS) solutions for fast and cost-effective access to medical images whenever and wherever they are needed.

The ability to capture, share and view complex medical images will be critical to the future of healthcare. Populations are ageing and becoming less mobile, creating more demand for remote monitoring and diagnostics. To enable faster diagnoses and better treatment, image data needs to be readily accessible to specialists, primary care givers and patients, wherever they are located. The move to electronic medical records means providing online access to image data as well as written records. And all this needs to be achieved while reining in technology costs.
The Eclipse suite of web-based PACS solutions from TECBRA Telehealth Solutions has Oracle Database 11g at its core. Oracle Database 11g brings the benefits of a modern, high performance relational database to the problem of managing vast quantities of medical image data, enabling developers to:

- Improve the reliability, performance, scalability, security, and integrity of solutions that involve management and storage of diagnostic images and other DICOM content
- Build non-proprietary and efficient repositories of medical images for a range of systems used in clinical trials, research and education, telehealth, and image-enabled EHRs

DICOM support in Oracle Database 11g can ease the development of next-generation medical image solutions by eliminating the development and maintenance effort required for tasks such as format conversion, indexing of metadata, and data security. Key benefits for developers include:

**Simpler Application Code**: Rapid development and deployment of applications with minimal resources by making use of open and standard SQL, XML, and Java APIs for managing medical images.

**Flexible, Comprehensive, and Fast Indexing and Searching**: Full text, XML based query, and indexed search on all standard and private DICOM attributes.

**Future Proof Platform**: Support for keeping up with the DICOM standard changes and new modalities with no application code change.

**Conformance Validation**: Improved application workflow by rejecting or correcting DICOM content that does not conform to the DICOM standard and/or enterprise rules.

**Improved Security and Auditing**: Oracle Database services that can assure both security and privacy of health information in the database – facilitating compliance with HIPAA and other regulatory requirements relating to patient confidentiality and information security.

**Security**: Powerful Oracle Database role-based security mechanisms to control access to all data in an archive. For example, the Oracle Virtual Private Database (VPD) feature allows database administrators to control the rows and columns visible to a database user and to mask information that should not be seen by that user. In addition, the DICOM attribute anonymisation feature allows the masking of individual DICOM attributes for privacy.

**Auditing**: Database auditing can record all access to DICOM content in an audit log, allowing authorised personnel to monitor any event at the schema, row, statement, or content level of a column through fine-grained access controls.

**Storage Reduction**: Reducing storage requirements can provide performance improvements for data access as well as backup and recovery operations. Oracle Database offers several options for reducing data storage requirements, including compressing DICOM content (when it is not already compressed), removing unused space and shrinking data files.

**Encryption**: Oracle’s powerful encryption technology can be used to protect DICOM content from unauthorised external access using secure encryption keys. Similarly, encrypting backup files can prevent access to DICOM content and patient data in misplaced backup tapes.

**Business Benefits**

By using TECBRA Telehealth Solutions Eclipse PACS solutions, healthcare institutions can:

- Create remote diagnostic centres
- Enable instant access to images and exams from any Web-connected computer
- Reduce diagnostic timeframes from hours or days to just minutes
- Seek and provide second medical opinions in real time
- Reduce costs by eliminating the use of film and CDs
- Create a secure, accessible repository of image data from multiple locations

“Oracle gives us, at TECBRA Telehealth Solutions, not only excellent technology to build our web-based state-of-the-art DICOM PACS solutions but also a global reach. With the worldwide agreement with Oracle to embed its products, we have the best technology available for our customers and the most cost-efficient commercial relationship on a global scale.”

**Aristides Meneses**
Chief Marketing Officer
TECBRA Telehealth Solutions
About TECBRA Telehealth Solutions
Founded in 2008, TECBRA Telehealth Solutions is a Portuguese technology company with an innovative, strategic approach to the development and delivery of solutions for telehealth, telecare and 100% web-based, DICOM-compliant Picture Archiving and Communication Systems (PACS). For more information, visit www.tecbra.com.

About Oracle
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