Healthcare Information Xchange

Solutions for Providers and Payers

ObjectOrb is a healthcare IT products and services company based in Bangalore, India. We have worked with customers in the US, Europe, Middle East, South Africa and India enabling them to offer better healthcare delivery through use of information technology.

Since our inception in 1998, we have developed for customers, solutions that provide healthcare professionals the right information at the right time. We have expertise in integration, application development and software architecture and process consulting.

Our single passion is healthcare information technology.

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>>**Praise**

MyDocOnline™
tools for modern health care

"*ObjectOrb is extremely customer focused and selflessly dedicated to meeting our needs – and the needs of our clients. They are committed to the highest standards for processes, design, development, project management and documentation. This discipline, and the ObjectOrb team are responsible for creating MyDocOnline systems that today are first to the market, and best in the market.*"

"*The managers and leads in charge are talented and well articulated people who maintain a positive attitude and keep an open mind. The human side of this management team is warm and friendly and a joy to work with.* "

MyDocOnline is a registered trademark of MyDocOnline, Inc., a wholly owned subsidiary of Zix Corp.
ObjectOrb developed MyDocOnline application, a 120 person year project at its offshore development center.

Connected World >
Integration Services

A member of HL7 Organization, we have successfully integrated different healthcare applications and understand the challenges involved. We are proficient in industry standards like HIPAA and HL7.

The MyDocOnline application that we built was audited by PriceWaterHouse Coopers and received a 5-star rating for its HIPAA compliance.

>>Key Success Factors

- Standards based solutions
- Usage of off-the-shelf components and products where possible
- Experience in integrating different applications
- Regular and intense communication with the third parties to define the interfaces – mostly by email and conference calls
- Good project management practices using industry best practices

>> Healthcare applications integrated with MyDocOnline

#	Third Party Systems	Features Integrated
1.	Logician	EMR and Round trip ODV*
2.	NextGen	EMR
3.	Practice solutions	Round trip ODV
4.	BMA-TPA	Provided content and Lab results
5.	Allscripts	Round trip ODV
6.	Proprietary appointment scheduling system	Appointments
7.	Eligibility system	Eligibility checks
8.	Handhelds based partial registration	Part of the registration information is captured and pre-registered from handhelds into the MyDocOnline application.

ODV – Online Doctor Visit is an innovative feature that allows patients to seek non-emergency medical advice from their physicians through the Internet.

Integration Projects >

>> Overview of Healthcare applications integrated with MyDocOnline
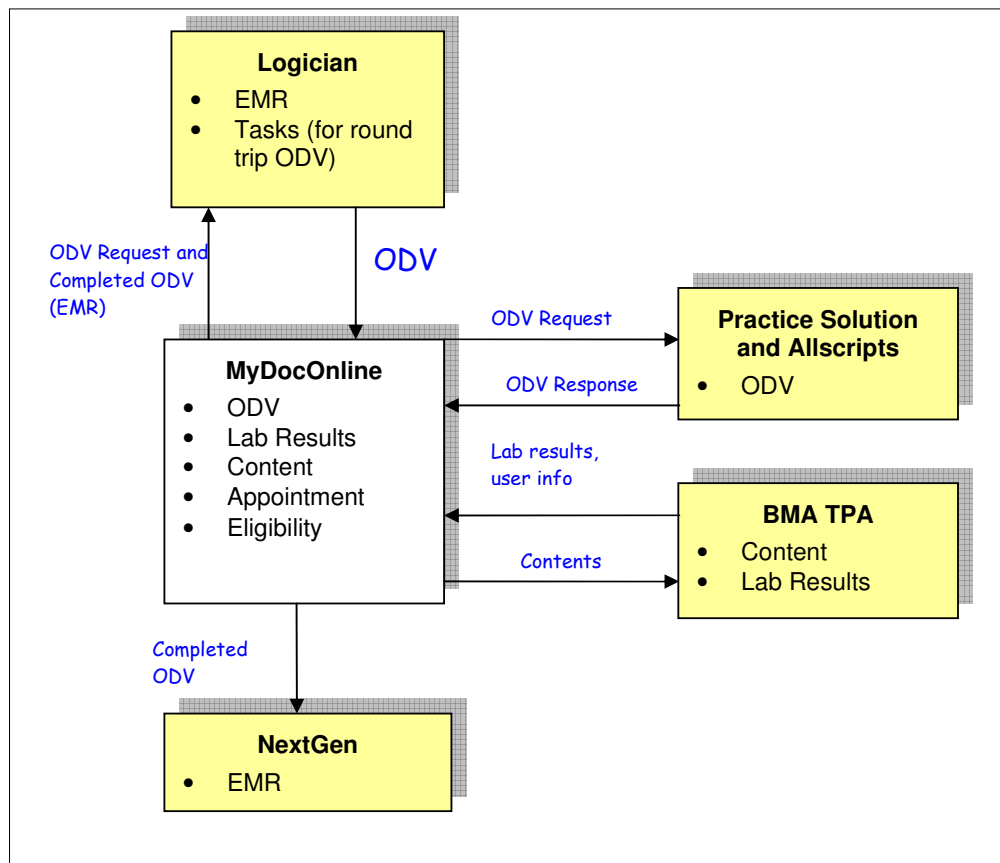
>>Tools and Technologies Used

We used the following tools and technologies to integrate diverse applications:

- JAVA, J2EE
- XML
- JAXB
- Oracle-9i
- Tomcat, Websphere
- HTTP and HTTPS
- HL7
- Integration Brokers

>>**Key Features**

- MyDocOnline Administrator can configure the destination of the messages generated from a medical organization. The end-point information includes IP address and port number of the listening process.

- MyDocOnline Clinic users can send messages (ODV, EMR, Contents, Appointment requests, Eligibility requests) by choice to
    - Practice Solutions
    - Logician
    - NextGen
    - Allscripts

- User Mapping:
To identify a patient across applications, MyDocOnline application sends the patient ID to the integrating application. This ID, from MyDocOnline, is mapped to the ID used by other applications to identify patients.

- Security:
Communication between the two systems is done over HTTPS connections. The integrating systems are connected to MyDocOnline system using a VPN.
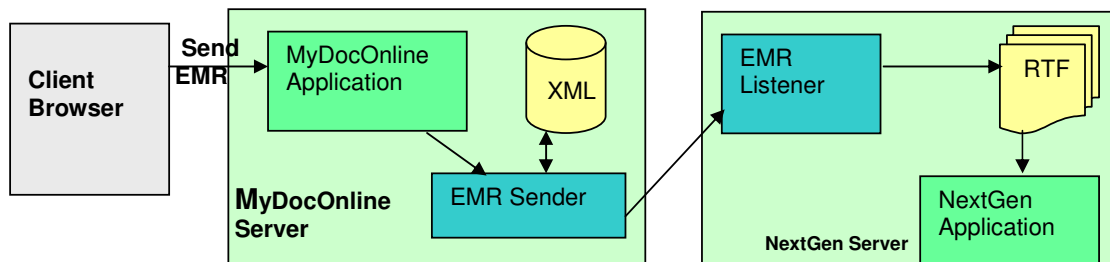
NextGen Integration>

>>Business Requirement

Some clinic (Medical Organizations) users of MyDocOnline application also used NextGen Electronic Medical Record (EMR) system. These users needed to update EMR with the information on ODV with encounter forms.

>>Solution

- MyDocOnline application extracts ODV information and generates an encounter form in XML format and sends it to the EMR Sender, which is in MyDocOnline's network.
- The EMR Sender stores this file in database and transmits it to the EMR Listener that is in the same network as that of NextGen System.
- The EMR listener receives this file and converts it to a RTF document and stores it in a directory whose contents are read and imported by NextGen application. There is a VPN established between MyDocOnline's datacenter and Clinic's datacenter.

The EMR Sender and EMR Listener were developed by another development partner of MyDocOnline and later maintained by us. ObjectOrb programmed to the interface provided for the EMR Sender.

The diagram below shows the different components used in the integration.

ODVs are filed in EMR system and made available for future reference.

>> Exception Handling

If the EMR Listener application is not running or is unable to process the file sent by MyDocOnline Application, the EMR Sender generates proper error codes for each type of failure. Based on the error condition the application can notify the MyDocOnline Administrator regarding the failure so that s/he can resend the EMR to NextGen.

Logician EMR Integration>

>> Business Requirement

Logician EMR system was used by some clinic (Medical Organizations) users of MyDocOnline application. These users wanted to store the ODV records in the EMR system.

>> Solution

Logician EMR accepts medical data in HL7 format. To convert ODV information to HL7 format, we used Rhapsody integration broker (chosen for its simplicity and cost effectiveness). MyDocOnline application sends ODV information in XML format to the broker, which is configured to convert the information to HL7 format and write to a specific TCP/IP port in the EMR.

Link Logic, the integration component of Logician, receives the EMR data and imports it.

>> Key features

Mapping of ODV XML to Logician's HL7 format is done using Symphonia mapper. If the mapping changes in future, only the map file needs to be updated.

User mapping is resolved by maintaining Logician patient's ID in MyDocOnline. The physicians are identified by their first and last names.

The diagram below shows different components used in the integration.

Object *Orb*
Technologies Pvt. Ltd.
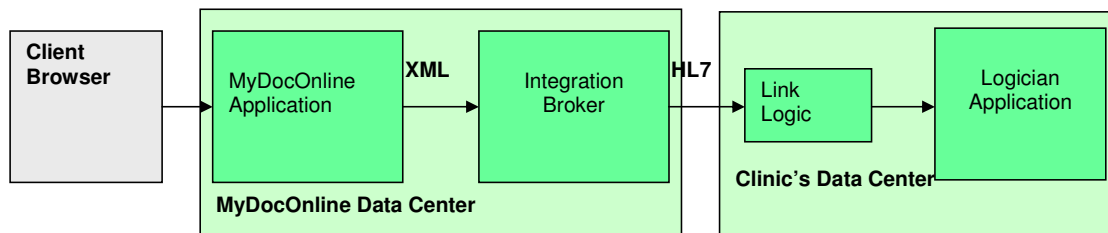
Logician Integration for ODV>

>> Business Requirement

Some clinics use Logician PPMS application and MyDocOnline. They wanted the following workflow:

1. Patients send ODV requests using MyDocOnline application.

2. MyDocOnline application forwards ODV requests to Logician PPMS.

3. Clinic user responds to the ODV requests using Logician and mark the response for export.

4. MyDocOnline receives the response from Logician and present it to the patient.

This roundtrip messaging is achieved by integrating the two systems.

>> Solution

MyDocOnline application converts ODV requests to XML format and an ODV Exporter transmits this data to the Integration Broker (IB). The IB converts the data to HL7 format, which the Logician application can understand. The data in HL7 format is sent to Link Logic, which is a utility of Logician to import and export HL7 document. Logician PPMS, through Link Logic, receives this ODV request and marks as a task for the PPMS user.

Physician processes the ODV request and sends to the MyDocOnline application as an RTF document embedded in an HL7 message. The IB listens on a different port for ODV responses, converts the HL7 to XML format using the map defined for response. This XML file is then sent to the ODVImporter in MyDocOnline application. The ODVImporter adds the ODV response to the application correlating it with the request that the patient had sent. The patient logs into the MyDocOnline application to view the response. The figure below shows the various components involved in the integration.

The patient identifying information is passed to Logician and got back from there in the ODV response. Other information exchanged is the ODV request identifier and physician identifier.
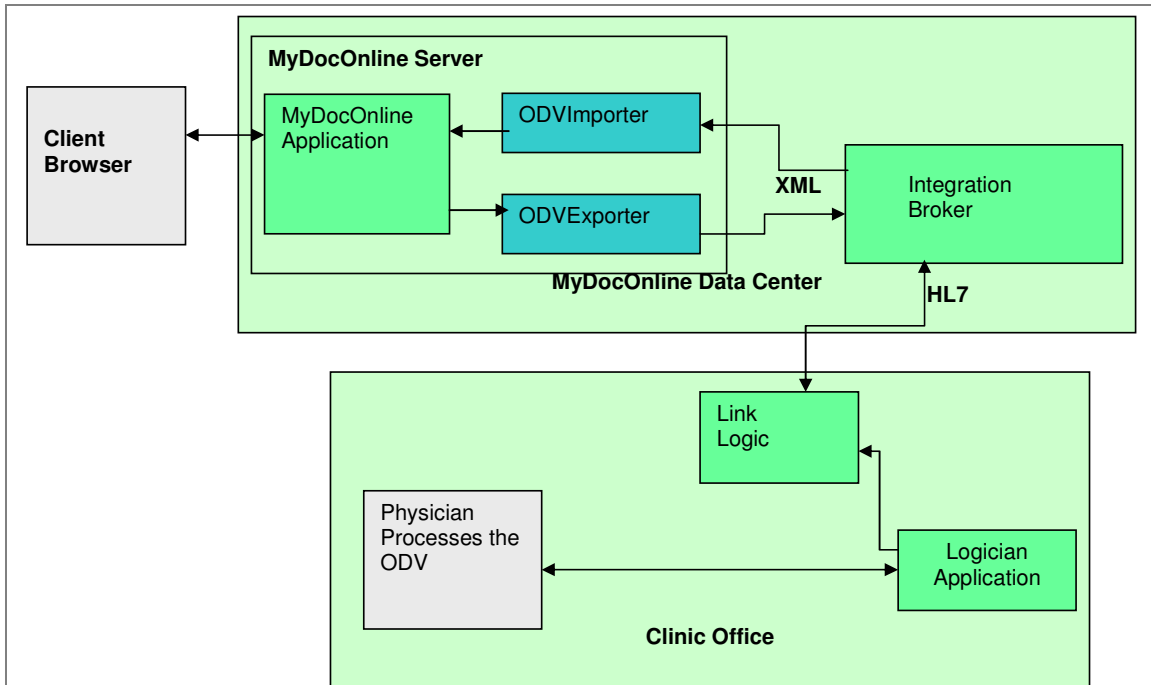
>> Key Features

Symphonia mapper is used to convert ODV requests and responses in XML format to HL7. If the mapping changes in future, only the map file needs to be updated.

User mapping is resolved by maintaining the patient IDs in MyDocOnline. The physicians are identified across the systems by their first and last names.

Different headers like patient identifier, message identifier, and physician identifier are passed as part of the request and made as readable part of the RTF. When the response is received, the RTF is parsed to get this information by the ODVImporter.

Practice Solutions Integration>

>> Business Requirement

Similar to the integration needs of Logician to receive and respond to ODV requests.
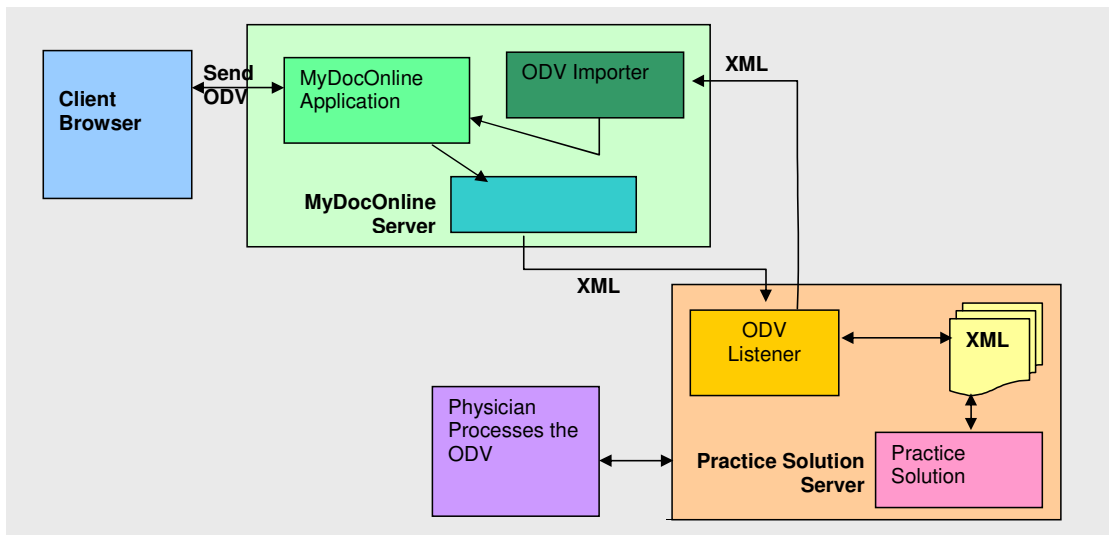
>> Solution

The solution is similar to the one provided to Logician except that the message is exchanged in XML format, and not converted to HL7 format.

>> Different Platforms

MyDocOnline is built in Java where as the Practice Solutions application is in C#.

The figure below shows the various components involved in the integration.

MCNT Lab Results Integration>

>> Business Requirement

MCNT (Medical Clinic of North Texas) used to send lab results of their patients through postal mail, which they wanted to send electronically using MyDocOnline application. To accomplish this result, the two systems, MyDocOnline and MCNT's application, had to be integrated.

>> Solution

MCNT's application sends the lab results in RTF to MyDocOnline application, which is stored in a shared location on the MyDocOnline server. The LabResultReader parses these RTF documents and extracts the lab result information for each patient, and formats it in separate user presentable RTF document. Further, the application sends an email notification to the patients indicating the availability of lab results. Patient can log into the system and view the lab results.

>> Key Features

- Patients receive lab results electronically
- Email notification to MCNT if the RTF document is corrupted
- Email notification to patients when his/her lab results are received
- Patients not registered in MyDocOnline application get an email notification on their external mail IDs asking them to register with the application to view the lab results online.

The figure below shows various components involved in the integration.
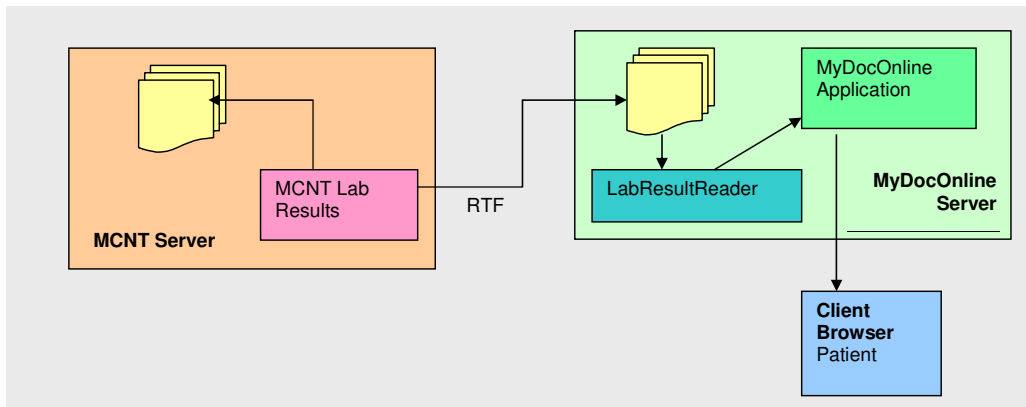
Products >

Transemble
Beyond Connecting Systems

Transemble is a 'Any database, Any format' integration tool developed by ObjectOrb. Transemble's relevance and applicability is vast and varies with respect to industry domain and systems that are to be integrated. As an emerging player in the healthcare vertical, ObjectOrb has successfully demonstrated applicability and benefits of Transemble to the healthcare industry.

Transemble integrates hospitals with different payers, clearinghouses and administrators, enabling them to submit claims efficiently. It is a cost effective replacement of legacy applications used by hospitals. It is designed for effortless installation, everyday operation, administration and maintenance.

>>Features

- Validation of data for completeness and correctness.
- Construction and submission of claims to clearinghouse/payer.
- Processing of responses from clearinghouse/portal
- Notification to the Administrator about errors in claim, if any.
- Resubmission of failed claims.
- Traceability of all claim rejections, resubmissions and approval status
- Reports for trend analysis
- Coded values to match any naming conventions
- Configurable scheduler
- Search capabilities
- Interface with HIS systems that uses any popular RDBMS systems
- Web-based, platform independent, multi-user system
- Supports multiple data sources

>>Praise

"It is fantastic"

Waseel ASP is a web-based clearing house based in Saudi Arabia.

eprovion™
Efficient Contracting

eprovion is a modern provider management system designed for payers, that automates contract workflows for various provider types. The system integrates tightly with claims systems to enable accurate contract loading and makes available claims-based provider profiles.

Later versions of eprovion will include such features as claims issue tracking, business intelligence, and disease management. The system is web-based and enterprise-class i.e. it is scalable, secure, robust, and offers high availability, and high performance.

>>Provider Contracting

eprovion supports the entire lifecycle of contract management – from preparing for a negotiation using provider profiles, to planning a negotiation calendar, to monitoring the contract during its lifetime and finally the renewal or termination of the contract. All of this is supported in one easy-to-use environment with powerful MS-Office integration. Contract templates can be created for reuse, and contracts can be annotated, versioned and batch-processed.

>>Provider Reimbursement

In eprovion there is support for various reimbursement methodologies for physicians, medical groups, hospitals and ancillaries. The methods for physicians include capitation and fee-for service models. For hospital contracting discounts, per-diems, DRG and APC based models are supported. Contracting for networks, medical groups and ancillaries is also supported.

>>Claims Integration

eprovion brings a new level of efficiency to claims processing by enabling accurate contract loading. There are tools for mapping contract clauses to claim system parameters, and for automating the loading of contracts into claims systems. eprovion's claims integration also enables the creation of provider profiles from claims data.

Praise >

"The program is excellent. The batching is wonderful. ... As compared to what we have (purchased six months back)... it is much easier to use. Our current system is slow and difficult to use... Yours is much better."

–Network Manager, United Healthcare

IndiaVima

IndiaVima is an innovative Internet solution from ObjectOrb that simplifies enrollment and enhances claims management for all the stakeholders in the Indian healthcare insurance industry.

Features:

Employer/Corporate
- Request for proposals online
- Compare different proposals
- Send information on addition/deletion online to insurance companies
- View premium breakdown structure for each employee.
- View the latest/updated employee beneficiary list
- View the CD Balance.
- View Multi-dimensional Claim Analysis reports.

Insurance Company
- Respond to RFPs Online.
- Highly versatile premium calculator.
- Online statistical view of Age Distribution & Family size.
- Activation of policy & Addition/Deletions endorsements handled with ease.
- Claim Analytics reports (Employer wise, hospital-wise, disease-wise, etc.)
- Online transfer of beneficiary list from the Employer/Broker
- View the latest/updated beneficiary list of each employer.

Broker
- Can work on behalf of the Employer to perform various tasks
- Request for proposals online
- Compare different proposals
- Recommend a policy to the employer which best fits their organization
- Handle addition/deletion online on behalf of the employer
- View premium breakdown structure for each employee.

TPA
- Generate E-cards & PDF cards.
- View the latest/updated beneficiary list of each employer.
- Can upload claims settled excel sheets to give the Insurance Company & the Employers detailed claim analysis.
- Online transfer of beneficiary list from the Insurance Company.
- Download photographs sent by employers.
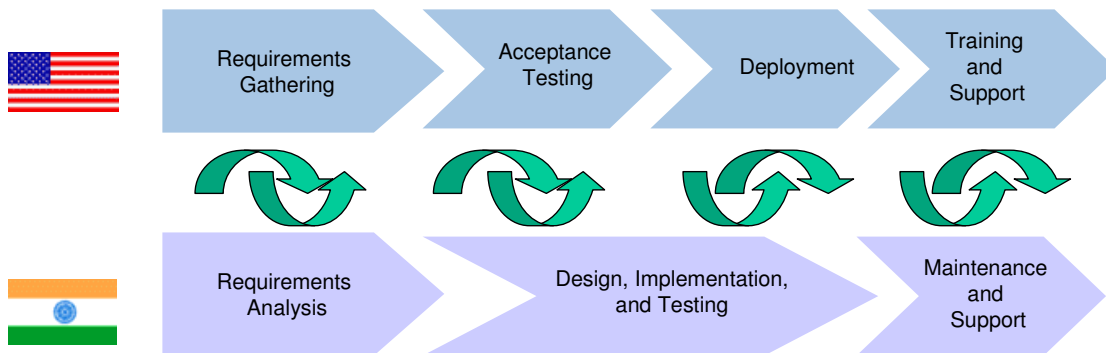
Praise >

The product is extremely good.
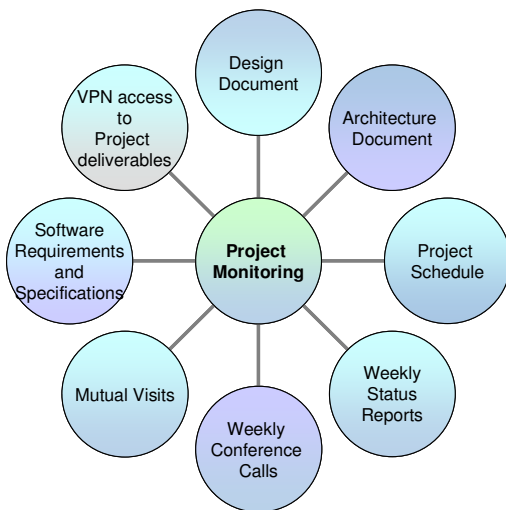
Services >
Offshore Development

ObjectOrb provides reliable, predictable, and low cost – high quality solutions to its global customers through a proven and successful offshore development model.

We follow the Unified Process of software development which enables us to accelerate project schedules with measurable time and cost benefit to our customers.

>>Key Activities

Requirements Gathering	Acceptance Testing	Deployment	Training and Support

Requirements Analysis	Design, Implementation, and Testing	Maintenance and Support

>>Project Monitoring

Design Document, Architecture Document, Project Schedule, Weekly Status Reports, Weekly Conference Calls, Mutual Visits, Software Requirements and Specifications, VPN access to Project deliverables, Project Monitoring

We work very closely with our customers forming a 'single team' during all the phases of the project.

We share key documents like Requirements specification, Architecture and Design documents, and project schedule.

We provide project visibility to our customers through weekly reports, conference calls, and through VPN access to all project deliverables.

Offshore Projects >
Partial List

>> Profile

MyDocOnline is a subsidiary of Zix Corporation, USA. It provided innovative tools that enabled online communication across the healthcare community, enhancing efficiency and patient care. It's comprehensive product suite offered a secure communication channel between healthcare providers, their clinical and administrative partners and their patients.

MyDocOnline's mission was to empower healthcare providers to improve overall efficiency and communication while enhancing partnerships across the healthcare community.

>> Project Details

MyDocOnline was a HIPAA ready, full lifecycle project developed at ObjectOrb. It offered doctors and their patients a convenient way to be connected to each other through Internet.

>> Effort Level and Outcome

It was a 120 person year project spread over 5 years. Nearly 11,000 patients and 1000 physicians used the application

>> A health insurance application for European and US markets

We have executed a large project (38 person years) in health insurance sector for a Swiss-based customer. The product was designed to be customizable/personalized, catering to multiple markets in Europe and the US. It offered customers multi-lingual support and was built using open standards.

Some of its key features and functionality included:

- Creating and maintaining an insurance partner
- Creating and maintaining products and contracts
- Reporting mechanisms based on dynamic requirements
- Workflow process integration
- Claims processing

Quality >
Processes & Assurance

ObjectOrb is committed to quality in everything we do. To ensure this, we have established a comprehensive Quality Management System (QMS) to ensure that quality processes are fully integrated with all activities of the organization such as software development, testing, project management, customer support, Human resources, and administration.

The lifecycle development activities are carried out as per processes laid out in QMS. All work products undergo reviews at various stages to minimize defects and rework. Such reviews help in catching defects and making improvements close to the 'source' rather than later, when it is geometrically more expensive to resolve such defects. The reviews may be carried out either by peers or by a panel depending on the criticality of the work products.

The review defects are captured in an in-house developed tool called Review Tracking and Analysis System. This provides visibility to the project activities at any given point. As further testimony to the belief in 'catching defects at the source', all developers carry out unit testing.

Only after passing the unit test is the code released to the test team for functional, system and other testing. Test defects are logged in a tool called Bugzilla. The test team certifies every release and based on their recommendation, the application is released to the customer.

A Software Quality Assurance (SQA) engineer is assigned to each project. The SQA engineer works closely with the project teams to ensure compliance to processes and implementation of best practices. The SQA engineer also carries out process reviews and audits and is responsible for continuous process improvement to ensure that processes are flexible and that they accommodate the changing needs of the organization.

At the end of each iteration or phase of a project, process and product metrics are collected. The metrics are analyzed for process and product performance. Root cause analysis is conducted for variances and the lessons learnt are ploughed back into the processes for continuous improvement.

At ObjectOrb we believe that customer satisfaction is the ultimate validation of quality. Keeping this in mind we carry out customer satisfaction surveys every six months. Such regular and formal feedback from the customers helps us in continuous improvement with a focus to improve customer satisfaction.

We achieved ISO 9001:2000 certification in 2002 and were appraised at CMMI Level 5 in 2006.

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