Hospital Management Information System
(HMIS)

Trio Corporation Pvt. Ltd.

www.triocorporation.in

Company Overview

Particulars	Details
Entity Registered Name	Trio Corporation Pvt. Ltd.
Entity Type	Pvt. Ltd. Company
Entity Registered Office	Office no 104 &105,Dhruta Complex ,Kelkar Road Narayan Peth Pune -411030
Communication Address	Office no 104 &105,Dhruta Complex ,Kelkar Road Narayan Peth Pune -411030
Date of Formation of the Company	19/07/2013
Website	www.triocorporation.in

Solution Overview

- Health Analytic Tools
- Health MIS Reporting Tools
- Integration with medical Equipment
- Front Line Health Workers System
- Diagnostic and Small Health System
- Hospital Information Management System (HIMS) 37+ modules

2 Company Background

- Trio Corporation Pvt. Ltd. is serving the Global Healthcare Industry as integrated IT Solution Provider Company located in Pune, Maharashtra , India.

- Trio Corporation Pvt. Ltd. incorporated in 2012, previously it was known as Sonic Infotech which was established in 2005, has seen growth in all aspects i.e. Technology, Territory and subsequently Turnover!

- Our main product HMIS (Hospital Management & Information System), an ERP for multi-specialty hospitals, with more than 25+ modules takes care of all aspects required for successful running and management.

- Through our low cost, high quality and reliable offshore software services, we serve our clients giving them value for money and thus client satisfaction.

Our Mission

The main vision of Trio Corporation is to float technologies that fulfill all requirements in a hospital. Hospitals still have paper record systems and we aim to have a completely automated medical record system in all hospitals.

"Our mission is to build a different kind of software company which listens to client needs, values innovation in development and solves customer problems with brilliant simplicity."

Key Solutions – Our Focus Areas

Building User friendly, low cost, and integrated solutions spread across all stakeholders

We endeavor to build solutions that can be plugged to a single platform covering patients, providers, payers & regulators

INTEGRATED SOLUTIONS COVERING ENTIRE HEALTHCARE ECOSYSTEM

Patients

Remote Monitoring

HC Mobile/ Tablet Apps

HC Web Portal

Telemedicine

Providers

Small Clinics/
SC/ PHC/ CHC/ CSC

Hospitals
(District Hosp., Private Hosp., Remote Area Hosp)

Dialysis Centers/
Diagnostic Centers/
Asset Light Formats

Mobile Clinic/
Outreach Centre

Healthcare Workers/
ASHA/ ANM

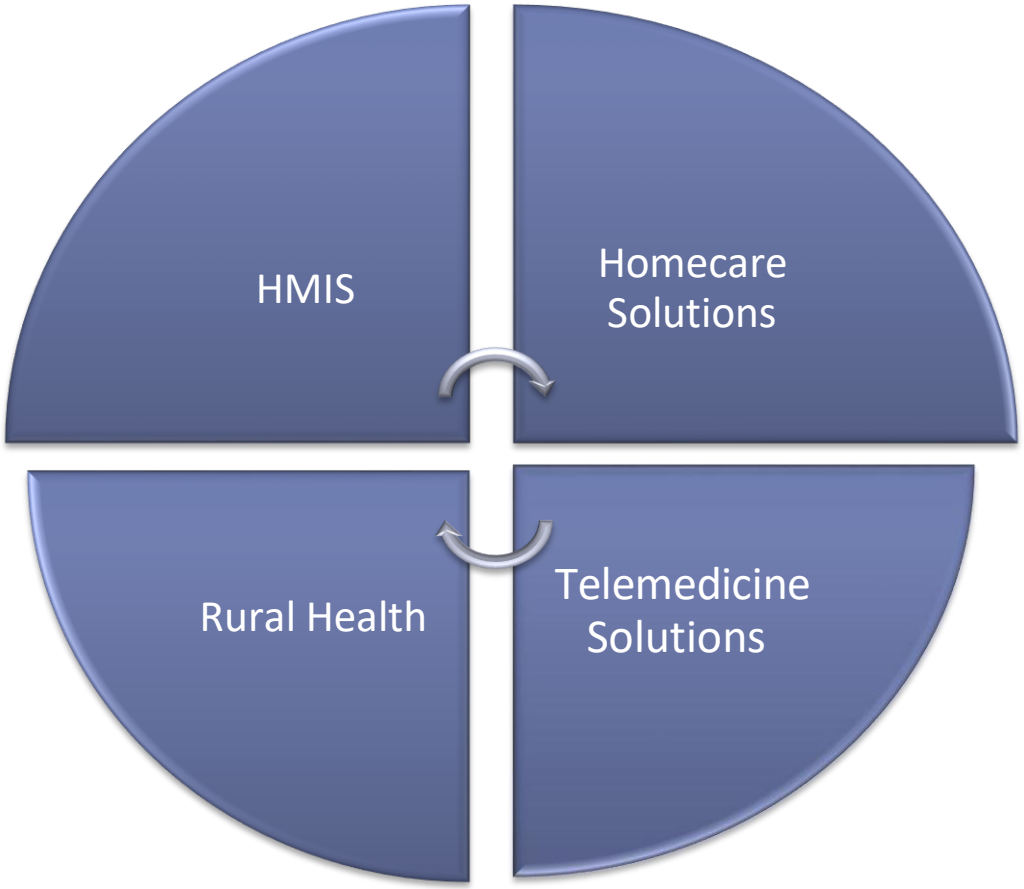
Payers & Regulators

Government Health Departments

Insurance Schemes/
companies

Others

Our Services



Areas of Expertise

- We are leaders in Hospital Management Information System, Healthcare IT Solutions, Telemedicine and other maintenance services.

- With deep domain knowledge and singular focus, we have built a robust, feature rich suite of solutions to deliver value to the healthcare industry worldwide.

- TCPL offerings are built with inputs from industry veterans, clinicians, medical authorities and patients. Designed with intuitive user-interface, our modular products are scalable and easy to implement, making us the obvious choice for small, mid-sized and large private as well as public sector hospitals.

- TCPL solutions meet the needs of healthcare service providers spanning tertiary, secondary and primary care to urban, rural, and home care.

We are driven by our focus to deliver “Excellence in Healthcare Management.” Our solutions transform the way clinical information is captured and used to improve the quality of patient care, their safety and service delivery.

Our Health Management Information System (HMIS)

Integrated solution across the patient value chain to improve health profile

Pre Hospitalization

- Patient Health Data
- Patient Health Surveillance
- Health Screening
- Primary Care & Referral
- Remote Health Communication System

Hospitalization

- Hospital Management System & referral System
- Specialty Hospital Management System

Post Hospitalization

- Patient Health Improvement tracking
- Post Discharge patient tracking System
- Health Screening
- Remote Health Communication System

Monitoring and Reporting

- Institutional Level MIS and Reporting System
- District Level MIS and Reporting System
- State Health Profile & Analytics

Our Merits

- Assure a steady quality by guarantee high quality of our deliverables.
- Our software development process is continuously monitored and improved to maximize productivity.
- Understand in-depth clients' business requirements.
- Deliver world-class end-to-end IT solutions.
- Adopting International and best practice standards.
- 24/7 client support via phone
- 99.99% up-time with high speed internet connection
- VoIP
- Video conferencing
- Instant Messengers
- Sophisticated Project Management System
  (to enable constant and ongoing updates during project development – involving all the aspects of the projects with key individuals)

Integrated Health Management System - Functional Architecture

Build an integrated solution to make healthcare accessible and affordable

Integrated Health Management System

Out Reach Centers

SC/PHC/ CHC/FRU

Sub District Hospitals

Telemedicine Centres

Veb Camera

Video Conferencing

Mobile Clinic

Healthcare Field Workers At Village & SC

Connectivity (Data Card/ Broad Band)

Medical Equipment Interfacing to expand outreach services

District/ Specialty Hospitals

Central Monitoring Station

Web-Based Clinician Access Portal

Patient Portal

Why TCPL ?

- Trim down costs.
- Complete a specified project within budget.
- We are fully Commitment to deliver your expectation.
- Deliver projects on time.
- We value good working relationships.
- We work to your time frames.
- Meet changing customer demands.
- Handpicked team of skilled professional.
- Creative solutions that deliver results.
- Focus on Core Competencies.
- We know what we doing. We have done it before.
- A time tested development process.
- Obtain Reliable Experts.

HMIS

Modules

HMIS Modules

RADT Module

- Patient Registration
- Admissions
- Discharges
- Transfers

Billing & Cash Counter

Patient Consultation – O/P and I/P

Electronic Health Record

Lab. Information Management System

Radiology Information System

Blood Bank

Diet and Kitchen

Operation Theatre (OT)

Infection Control & Quality Control Management

IVF

Nursing Care Desk

Roster Management

Stores and Inventory Management

Pharmacy

Financial Accounting

Human Resource Management System

Patient Inquiry and Customer Care

Asset Management System

Maintenance

Linen Management

Medical Record Department

License Management

User Management

Administration

Interface with external equipments

HMIS - Functional Flow

- Doctor
- Pharmacist
- Nurse
- Case Writer

Patient Services

Appointments	Registration	Clinical
Pharmacy	Laboratory	Blood Bank
Patient Billing	Wards	Nursing Care

- Patient EMR
- Short Expiry Drugs
- Multi Date Appointments
- In Patient Management

- Patient/Visitor
- Nurse

Ancillary Modules

Patient Inquiry and Customer Care	Diet and Kitchen	National Program
	Linen Management	Information Kiosks

- Patient/Visitor
- Nurse

- Stores in Charge
- Nurses

Inventory Modules

Stores	Purchase	Equipments

- Stores in Charge
- Nurses

- Administrator
- Clerks
- System Administrator

Administrative Modules

Employee Payroll	Financial Accounting	Resource Scheduling
Hospital Admin	Human Resource	Leave Management
Complaints	Transportation	Security

- Administrator
- Clerks
- System Administrator

- System Admin
- Hospital Management

Reporting Modules

Clinical	Commercial

- System Admin
- Hospital Management

HMIS – Value Proposition

- Patient investigative care time reduced by 50%
- Shorten length of stay for OPD / IPD patients
- Prevention of duplicate treatment orders, reduced clinical errors
- Better diagnosis and fast treatment process through Electronic Health Record, Past history, current report
- Single window accounting across various hospital functions such as Pharmacy, Pathology, Radiology, OT, Services etc.
- Revenue leakage stops – Checks and Locks at discounting
- Inventory Control Checks
- Removal of losses due to medicine being expired.
- Decision Support System

HMIS – Value Proposition

- Manpower scheduling / Optimization specially for Nurses and Ward boys
- Employee productivity is measured consistently with identifying performance metrics such as No. of Bills handled everyday, for Nurse – No. of Patient attended, for Doctors – No. of OPD, Surgeries, Visit etc.
- Automated Payroll, Leave Management System
- Integration with Nurse Calling System, Patient Display etc.
- Follows Industry standards ISO, NABH, NABL standards

HMIS – Decision Support

- Various performance Analysis based on the performance monitoring like :
- Doctor Performance for various parameters at given period
- Bed occupancy ratio
- OT utilization ratio
- Investigations suggested from given period
- Drug brand prescribed from given period

HMIS – Benefits

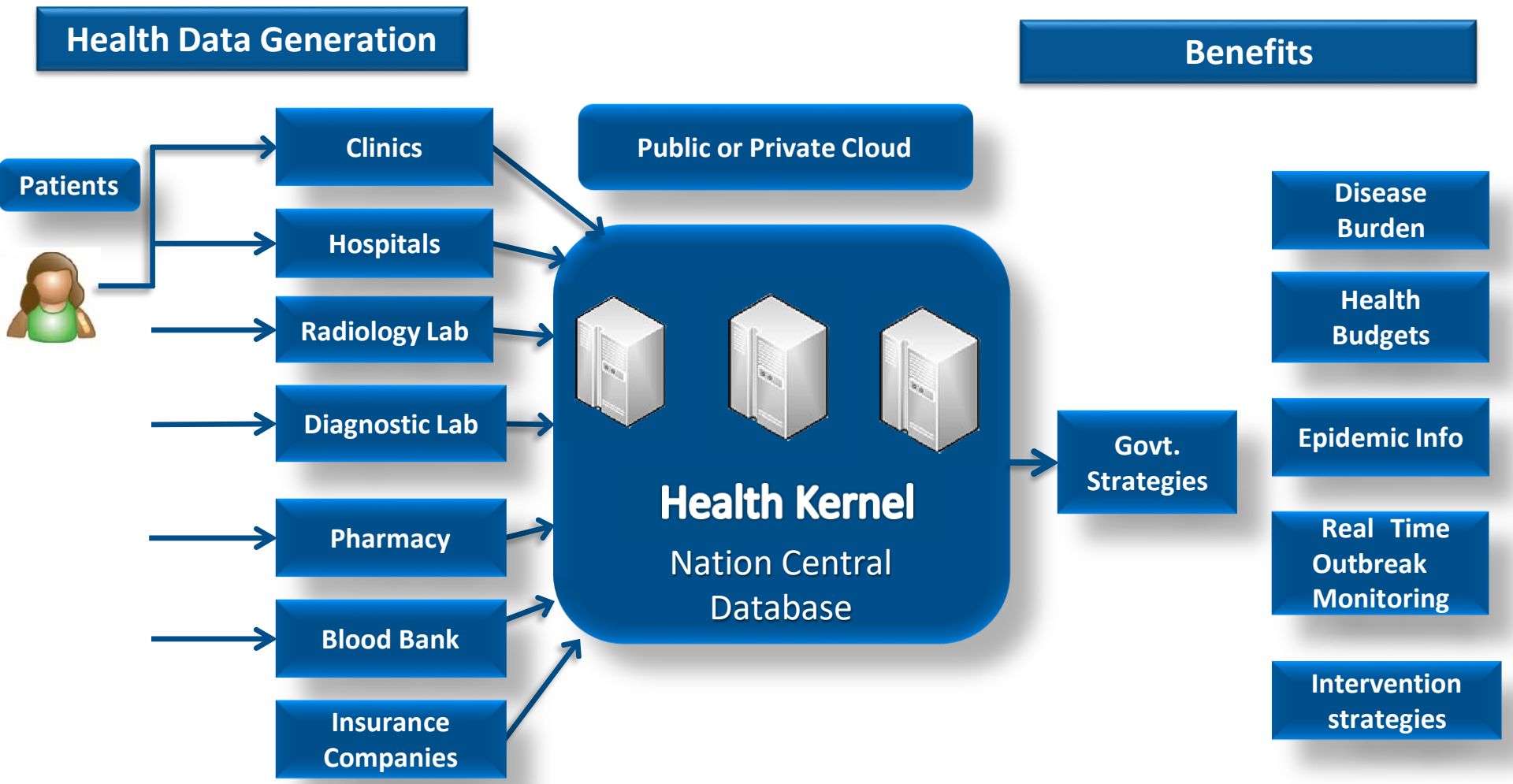
Direct benefits

- Easier patient record management
- Reduced paperwork
- Faster information flow between various departments
- Enhanced availability of timely and accurate information
- Reduced length of stay
- Reduced test requests
- Greater organizational flexibility
- Reliable and timely information
- Easier resource management
- Minimal inventory levels
- Reduced wastage
- Reduced waiting time at the counters for patients and reduced registration time for patients.

In Direct benefits

- Optimizes the resources to be deployed and helps in prioritizing the developmental activities of the hospital
- Better administration and control
- Enhanced fund management
- Better reporting to aid strategic decision making
- Improved patient care and satisfaction
- Improved image of the hospital and increased competitive advantage

Integrating Healthcare Centers Across State – Macro View



HMIS

Work Flows

Out-Patient Work-Flow HIS + PACS + Tele-radiology

Patient Registration 1

1. Registration
2. Medical Record No
3. Making visits and
4. consultations

Registration for Laboratory 2

1. Diagnosis
2. Request Lab Test
3. Prescribe Drugs
4. Generating Patient Case Record

Cashier 3

1. Receive Payment

Laboratory 4

1. Collect Sample
2. Enter Results
3. Approval and Generate Reports
4. Lab Device Integration

Pharmacy 5

1. Dispensing
2. Receiving Payment
3. Inventory Management
1. Purchase Management
2. Stock Management
3. Multi Locations

MRD 6

1. Providing medical file
2. Provide note
   Provide lab results
3.

In-Patient Work-Flow HIS + PACS + Tele-radiology

Patient Registration 1

1. Registration
2. Patient acceptance
3. Selection of physicians
4. Insurance

Room Management 2

1. Room booking

Doctor visit 3

Settlement 6

1. Return Items
2. Payments / Refunds

Cashier 5

1. Payments

Billing (Lab, Pharmacy, Radiology 4

Receive Insurance Claim 7

Insurance Validation 8

9

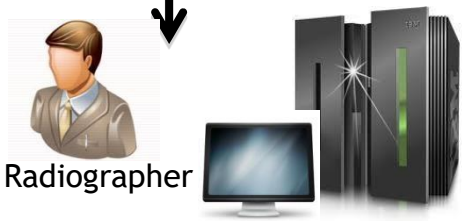
Send to Accounts Dept.

Radiology Work-Flow HIS + PACS + Tele-radiology

Patient Registration 1

Radiology / Modality Worklist 2

Modality Scan 3

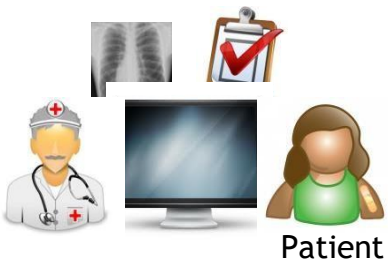


PACS – Scan, Data Storage & Delivery 4

1. Store Picture
2. Send to Radiologist

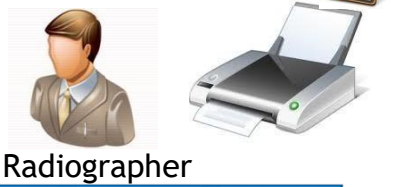
Radiology Workstation 5

Radiology Results Study



Doctor View 6

Doctor Analyses the Report & Image



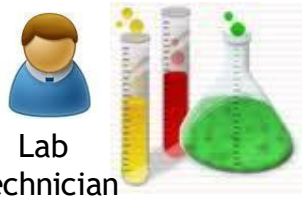
Film & Print Reports 7

Radiographer prints and Give them to the Front desk

Cashier 8

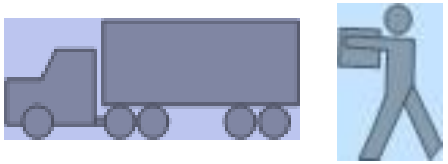
1. Receiving Payment
2. Handing over Patient Case Record
3. Handing over the film and reports to Patient

Laboratory Work-Flow



Lab – Sample Collection 1

Bar-Coding 2

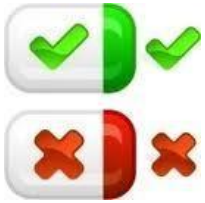


Sample Transfer 3

1. Sample transfer to other locations
2. Receive sample from Other collection centers

Sample Analysis 4

1. Analysis done using Lab devices (Uni & Bi-directional)
2. Receive Results from the Devices



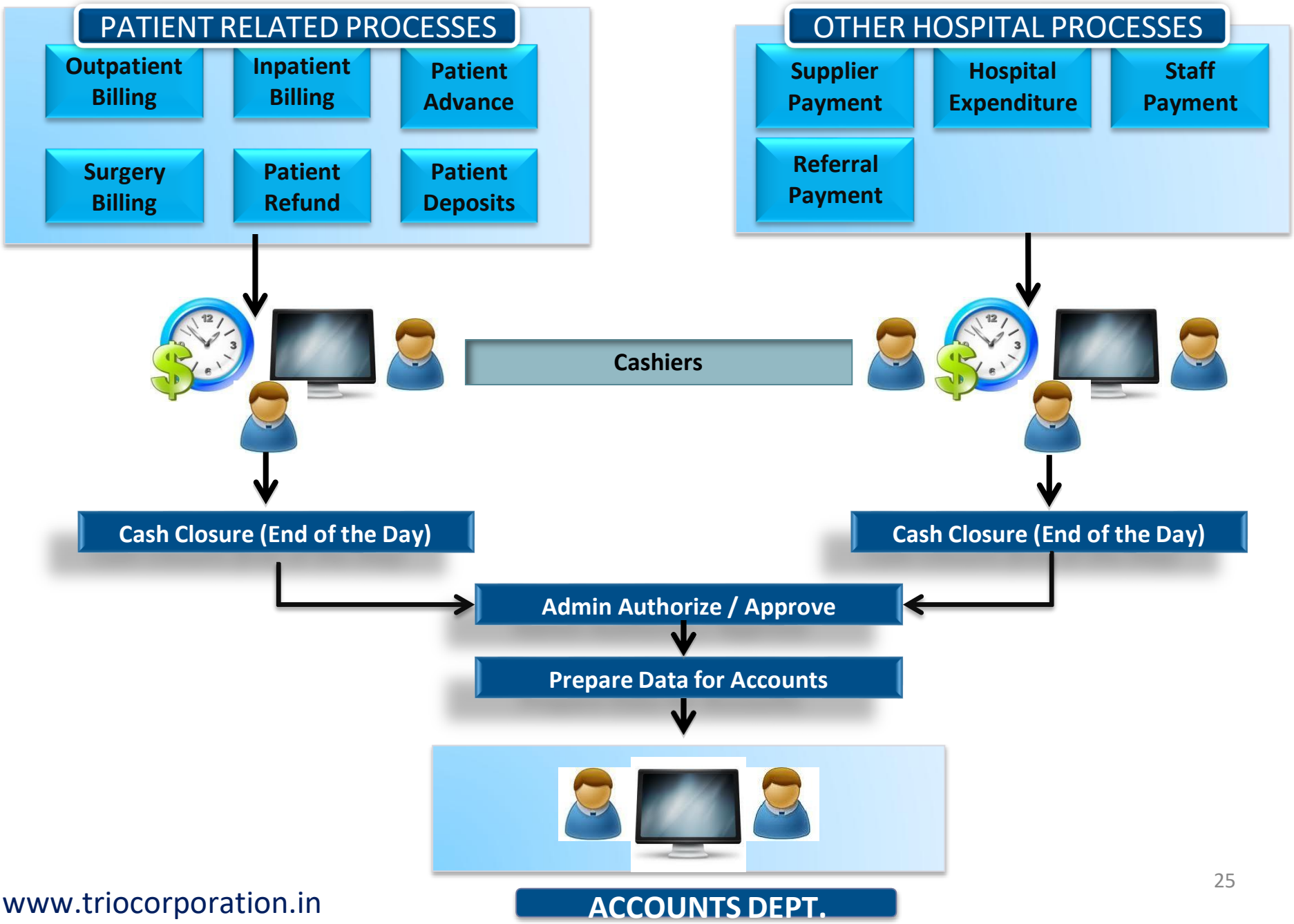
Result Analysis 5

1. Result Entry & Analysis
2. Approval & Rejection
3. Re-Test

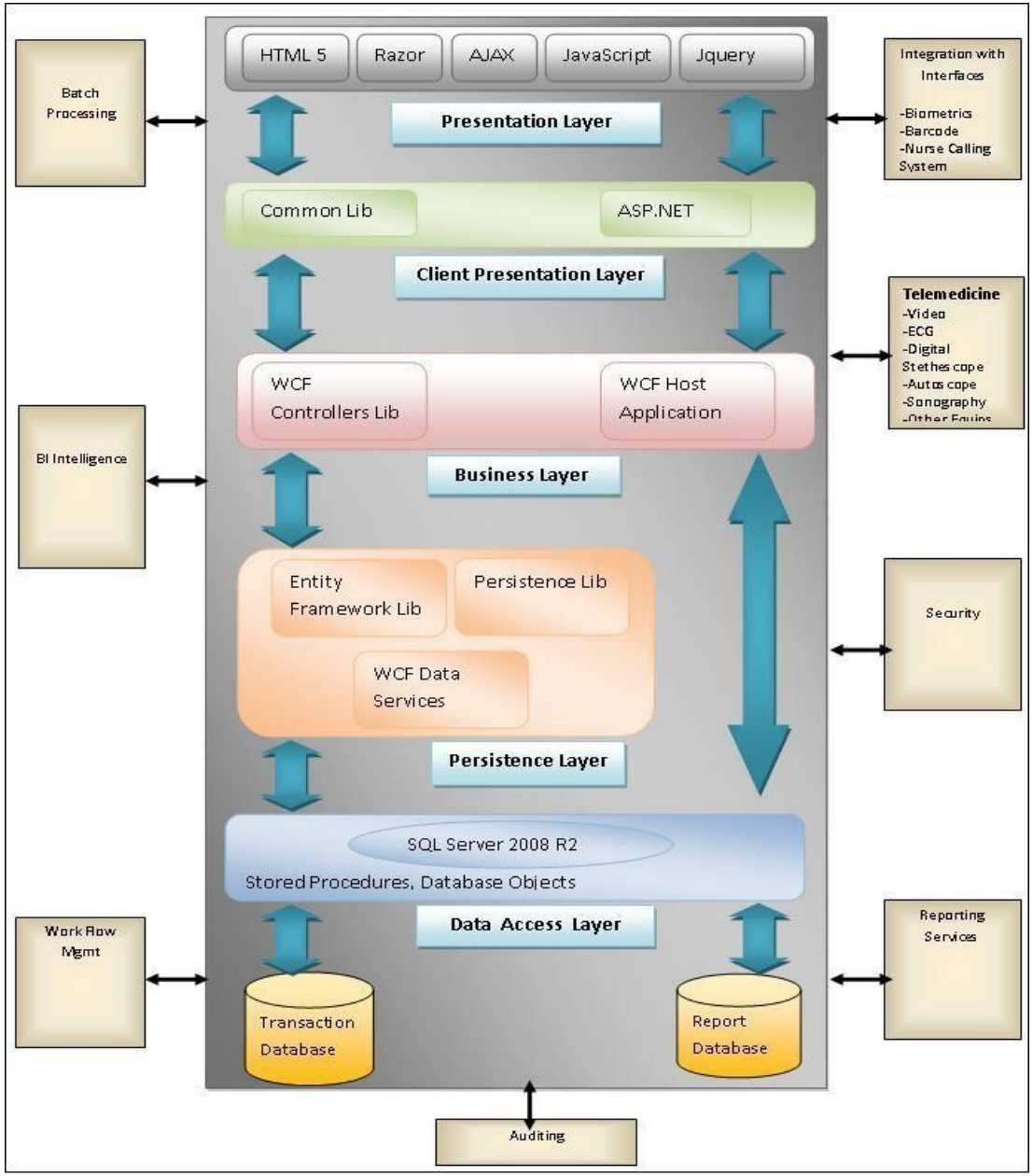
Report Handover 6

1. Handing over Report in person
2. Inform Patient by SMS that Report is ready
3. Export Report in PDF or Word
4. Send by E-Mail

Accounting System Integration Functional Flow



Technical Architecture of Solution



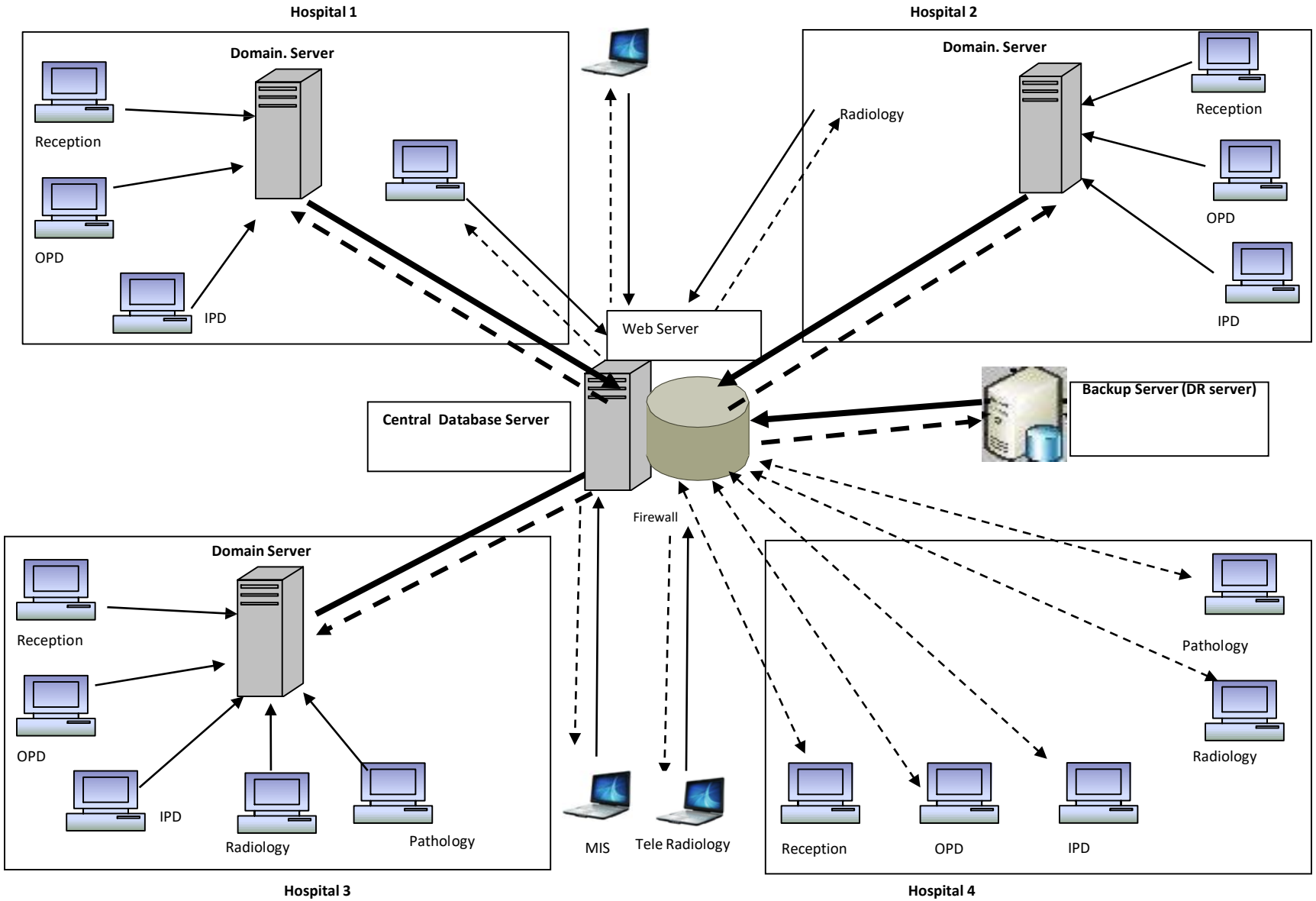
Different Architectures Supported by Solution

- Centralized Architecture
- De-Centralized Architecture

Centralized Architecture of Solution

- In this solution web application is hosted on a central server, or data center, along with the database server. More than one hospital can connect to the central server with a URL from internet browser.
- Each hospital can have a domain network or independent computers with internet connectivity. The domain members can connect via domain server to the central server through shared internet connection or else individual computer can connect directly to the web server via internet dongle.
- Only online mode of data storage is supported, so connection must be available round the clock.
- The database at the central server location has a backup server for data security.
- Each hospital will save their data in central database.
- Application will be available to the authenticated users only, which will be maintained at the central database.
- User information like password is stored in 128 bit encrypted form.
- Reporting Server (DSS) will be in the normal form and will receive the data at a regular basis so that the users can view the earliest information.

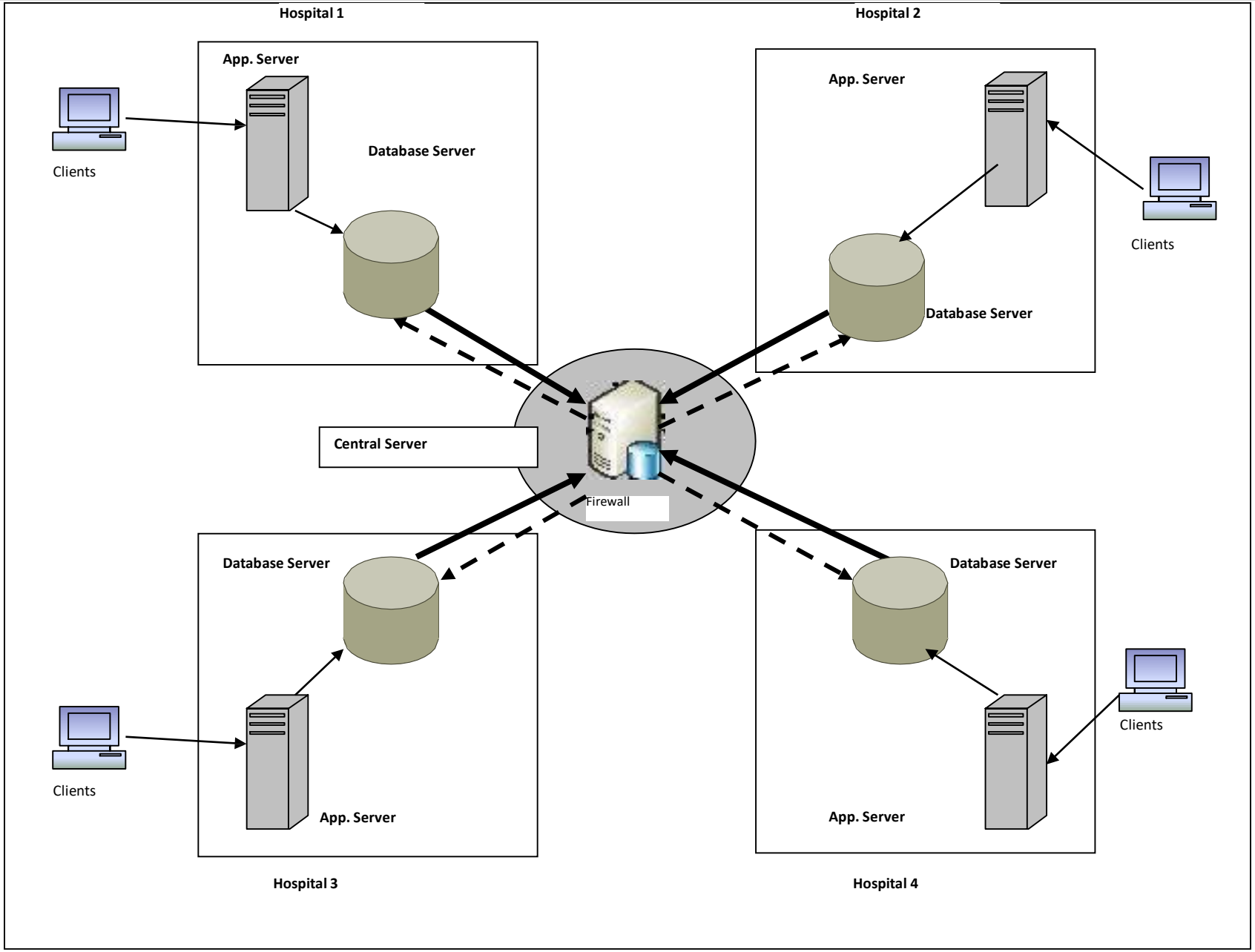
Diagrammatic Representation of Centralized Architecture of Solution



De-Centralized Architecture of Solution

- There will be 2 application users one for transactional server (OLTP) and one for reporting server. This will help in distinguishing the application logically, increasing the maintainability, manageability and performance of the application
- Server with the database preferably SQL Server 2008 R2 with Reporting Server, Data Warehouse Server at the central location
- At every hospital, there will be separate local one application server and one local database servers. This local database server will have limited data required for that hospital
- All hospital users will connect to the local App. server
- All Administrator will connect to the central server
- All local servers will communicate with the central server over intranet connectivity
- All the data, master as well as transactional, will be synchronized between the central server and the distributed servers nightly or as per decision using Replication Services where the Central SQL Server will pull the changed data from distributed servers and stores in the staging (Replication) schema and vice versa. From staging, all the data will be inserted or updated in the production schema.

Diagrammatic Representation of De-Centralized Architecture of Solution



Technology

Client Server Technology

Microsoft Visual Studio – Is an integrated development environment (IDE) from Microsoft.
Languages :Visual Basic 6.0
Database Tools : Microsoft SQL Server 2005/2008/2012
Reporting Tool - Crystal Reports 8.5

Web Technologies

Dot Net Framework 4.5
Languages : ASP. Net , C# , AJAX, MVC
BI Tool - SQL Server Reporting Services 2005
Database Tools : Microsoft SQL Server 2005/2008/2012

Mobile Technology

Android Framework
Platform : Android 3.0 (Honeycomb)

Few of Our Esteemed Clients

MAX NEURO HOSPITAL
BRAIN SPINE TRAUMA

SETH G.S. MEDICAL COLLEGE & KEM HOSPITAL, PAREL, MUMBAI

KALSEKAR HOSPITAL

GODREJ MEMORIAL HOSPITAL
COMPASSIONATE CARE FOR ALL

Sushrut Hospital
Research Centre
A Unit of Chembur Hospital Project Trust

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DR. HEDGEWAR HOSPITAL
Dr. Babasaheb Ambedkar Vaidyakiya Pratishthan

Thank You

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