

# Remote Patient Monitoring and Healthcare Applications

# contents

Abstract.....	2
Introduction.....	3
What is Remote Patient Monitoring?.....	4
Homecare Applications.....	6
Conclusion.....	8
Reference Material .....	8

---

## Abstract

The needs of Remote patient monitoring, homecare applications are manifold. Some instances that are driving this rapidly growing Telemedicine based approaches include:

**Fiscal perspectives** - The Insurers (or Funding agencies) have a pressing need to control visits by patients to Hospitals/Emergency rooms, with an objective of addressing cost and decongestion issues.

**Care perspectives** - The medical fraternity is burdened by sheer volumes; chronic care in areas like Diabetes, Asthma management among others can have effective remote and home management lead by care provided from remote and simultaneous locations.

**Patient needs** - There is an increasing demand from these services from patients due to a variety of reasons including lack of mobility, geographic challenges, geriatric conditions and chronic ailments.

In order for solutions to be effective, multiple entities in the ecosystem must converge together. The medical fraternity must formulate strategies along with IT solutions vendors, Telecommunications providers and Medical Device manufacturers.

The need of the hour is to customize offerings of these entities to meet a common objective. Such a cohesive approach will ensure building of an infrastructure that meets Medical and Business needs backed by seamless connectivity with firm focus on providing quality care and on demand

---

## Introduction

“The predicament currently persisting upon the health industry across the globe is that of a rapidly increasing aged population or the “Baby Boomer” generation. The dilemma mainly concerns the delivery of effective and efficient services to a population where chronic and acute diseases are most prevalent. Healthcare Deliveries have gradually shifted from acute hospital care to outpatient care to home care. Home care, typically involves periodic visits by a nurse or other caregivers, and may require patients to maintain detailed records about their diet, and health.

This situation is a concern since it might result in a drastic change in the availability, accessibility and affordability of healthcare.

Having said this, it needs to be noted that the care providers are in an advantageous position of being in the web 2.0 era where they can use the best of technology to deliver what is required. It would be absolutely unrealistic though to think that technology alone can fulfil such a pervasive need. Critical amendments need to be made in the processes within the healthcare organisations to swiftly accommodate the current needs. The patient monitoring market is an expanding and profitable sector in the global healthcare industry which needs to be addressed and captured.

---

## What is Remote Patient Monitoring?

Remote Patient Monitoring is a concept that has evolved to address the issues rooting from the current healthcare dynamics. The aim to decongest ER, to reduce costs, for both insurance companies and patient, and making healthcare available to all who need it is met. The Remote patient monitoring infrastructure is an all inclusive term that encompasses a number of high-tech applications that involve providing remote care for people.

The applications can range from monitoring a person's heart rate while working out on a treadmill in a fitness club to transmitting a patient's telemetry readings to a nurse over the Internet. There is a wide variation in terms of clinical conditions that can be monitored, how often they should be monitored, and whether they should be monitored real-time or periodically.

In this model, the patient requiring care is placed in a remote location, typically at home, from where he/she can connect to the wide range of home care applications which send relevant data to a central server. This central server is in turn accessible to the referring physician who can monitor and diagnose the patient without physical present near the patient.

A typical scenario of home healthcare is shown in Figure 1 where the patient is located at his home and is connected to a medical device. The information that is transmitted by the device is sent to the Hospital/clinical information system which are accessible to the physician.

What should be noted additionally here is that all data and communication that occurs between the devices is done using standard communication protocols like HL7.

The action expected from the physician as a result of such monitoring is to make a clinical decision on whether the patient requires:

- Immediate hospitalization
- Urgent doctor visit
- Continued monitoring

The judgement on which patients can be put into a continuous remote monitoring mode instead of hospitalization is also the prerogative of the physician

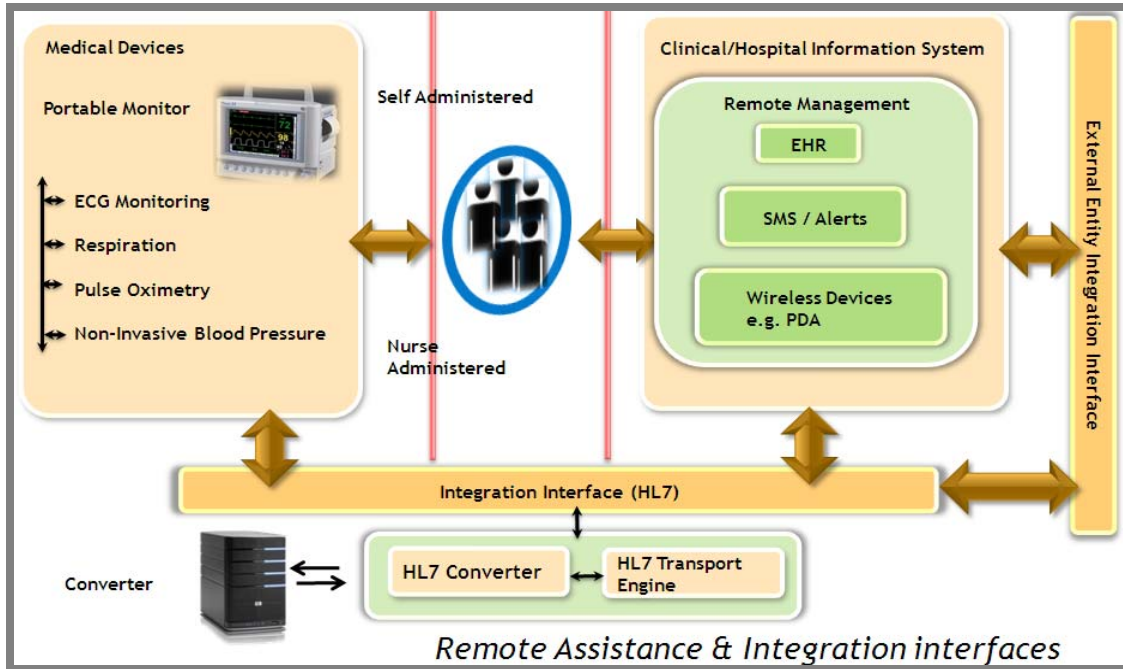


Figure 1: A Typical Scenario of Remote Patient Monitoring

## Homecare Applications

The use of home care technology/applications now makes it possible for advanced data collection systems working in conjunction with remote video and non-video communication devices to simplify home care practices for both patients and home care personnel.

The current trend toward healthcare consumerism, initiatives to reduce medical errors and improve healthcare quality, aging population, and an expanding technology infrastructure that is producing quick and dramatic improvements in mobile communications is a primary driver in the use of remote patient monitoring and Homecare applications.

As described above, a large portion of healthcare delivery is going to be initiated at the home and until an absolute emergency is seen patients are not required to be hospitalized. To achieve this format of interaction between patient and provider, it is necessary that the available technology is customised for the same.

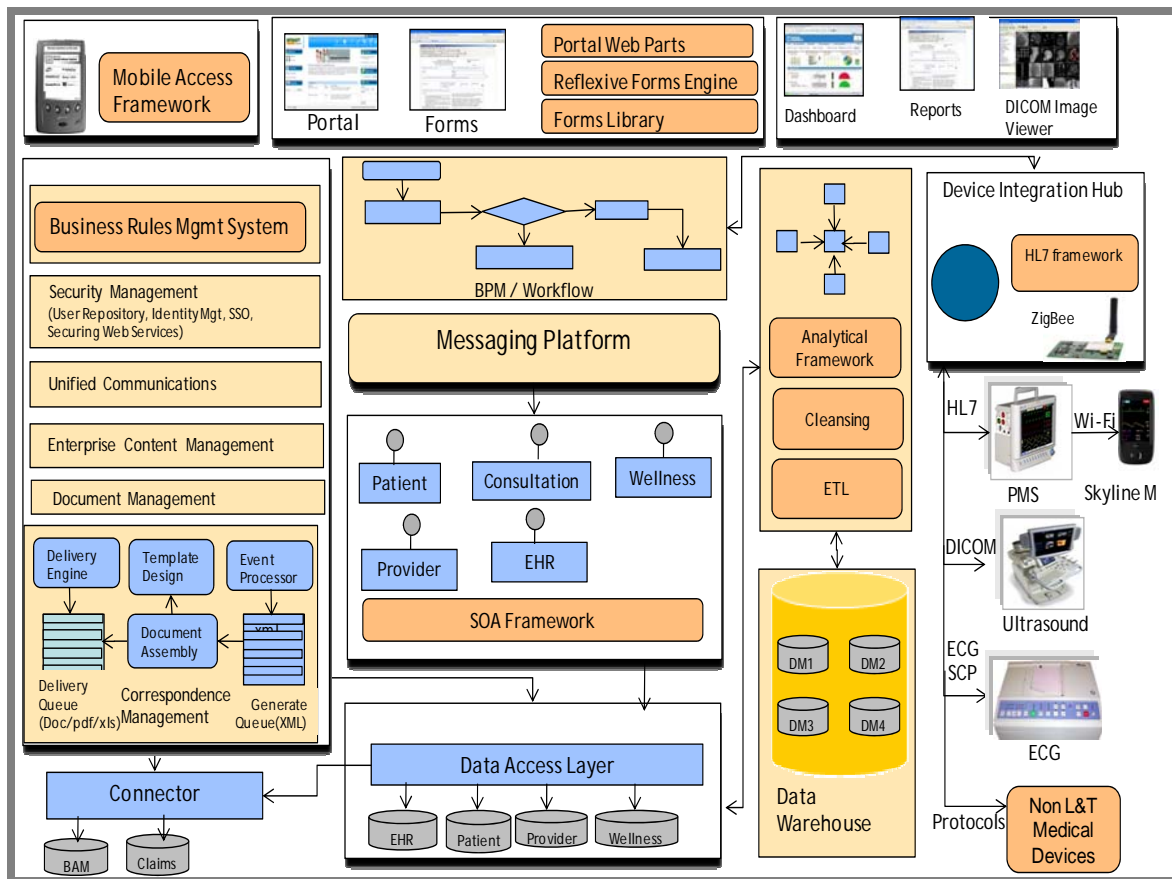


Figure 2. Technical Architecture that would enable Homecare Assistance

With patients becoming more involved in their health management, physicians, nurses, clinicians, Medical Manufacturers, Preventive care providers/experts, internal and external

---

agencies and other care providers can extend their reach and effectiveness without patients crowding at the emergency rooms for getting care and facilities. Homecare applications are positioned to become a source of data for both the **Electronic Health Record (EHR)** and **Personal Health Record (PHR)**.

Such instances/scenarios are assisting to get care to the patient at their door step rather than patient going to hospitals or care providers to get them cured, this paradigm shifted is already noticed and felt by the Industry and the Healthcare ecosystem entities. Patients will now be able to access their PHR and update it, ensuring they have the most up-to-date record of their current health status wherever the patient travels- which means at his/her easy disposal and convenience. The information sent to the clinician can immediately be incorporated into the patient's EHR, providing the extended health team with a complete view of the patient's status.

---

## Conclusion

The remote patient monitoring market is a nascent market and IT solution and services are to be implemented to reduce the Emergence congestion, patient travel, working towards prevention and cure rather than treatment and sickness and overall healthcare costs

## Reference Material

L&T Infotech internal brainstorming sessions and initiatives towards building Solution Accelerators

## About the author



Mr Luke Rajkumar, Head - Healthcare Practice at L&T Infotech, has conceived, incubated and built this Practice from scratch under the umbrella of the Insurance business unit. In this role he has built business and technology capabilities that cover global healthcare needs serving the Payer, Provider and going forward the Pharmaceutical markets. Has total experience of more than 20+ years with 15+ years of Healthcare Domain Experience and 15+ years of IT experience. Luke has been associated with the Insurance practice -Healthcare Sub-Vertical of L&T Infotech since 3 years and Heading the Healthcare Practice. Enjoy interacting and influencing C level executives from a Business, Domain and Technology perspective. His leadership capabilities coupled with an ability to effectively communicate across a broad spectrum has led him to success in execution of strategies and onto building organizations

## About L&T Infotech

Larsen & Toubro Infotech Ltd. (L&T Infotech), one of the fastest growing IT Services companies, is ranked 5th globally among the Best IT Services Providers by Global Media Services in 2009, ranked 11th by NASSCOM among the top software and services exporters from India and also ranked among the 'Leaders' category in the prestigious Global 100 list released by the International Association of Outsourcing Professionals (IAOP). A wholly-owned subsidiary of USD 8.5 billion Larsen & Toubro, India's largest technology-driven engineering organization, L&T Infotech is differentiated by the unique Business-to-IT Connect, which is a result of our rich corporate heritage.

We offer comprehensive, end-to-end software solutions and services in the following industry verticals: Banking & Financial Services; Insurance; Energy & Petrochemicals; Manufacturing (Consumer Packaged Goods, High-tech, Industrial Products, Automotive, Chemicals & Process, Media & Entertainment, Pharma, Retail and Logistics); and Product Engineering Services (Telecom).

We also deliver business solutions to our clients in the following Service Lines: SAP, Oracle, Infrastructure Management Services, Testing and Consulting. Our other Service offerings are: Business Analytics, Legacy Modernization, Applications Outsourcing, Architecture Consulting, PLM, Service Oriented Architecture, end-to-end integrated engineering services and embedded system solutions.

For more information, visit us at [www.Lntinfotech.com](http://www.Lntinfotech.com) or email us at [info@Lntinfotech.com](mailto:info@Lntinfotech.com)