HCLTech | Supercharging Progress™

Connected Assets in Regulated Environment (CARE)

CARE™

HCLTech's Connected Assets in Regulated Environment (CARE) is a Micro-services architecture featuring multi-tenant platform that helps in building a regulated medical class software within a significant reduced time.

The CARE platform offers essential building blocks to expedite the development of next-generation software and services.

CARE consolidates pre-packaged application frameworks, reusable software elements, automation tools for developers and testers. It also supports the adoption of optimal architectural patterns and best practice templates. This integration accelerates the development of software and platforms.

Key features

- Integration of standardized and top-notch technologies
- Data Management to store, retrieve, encrypt, import and export data
- Cutting-edge built-in security to thwart attacks and ensure compliance
- Packaging and containerization support for cross platform deployment of micro services with back-up/ restore features for business continuity
- Integrated drag and drop builders for code generation, Entities, REST APIs, UI, Unit Tests and Automation Scripts along with Service Integration
- Support for multiple architectural patterns, including Event Driven, N-Tier and other Microservices
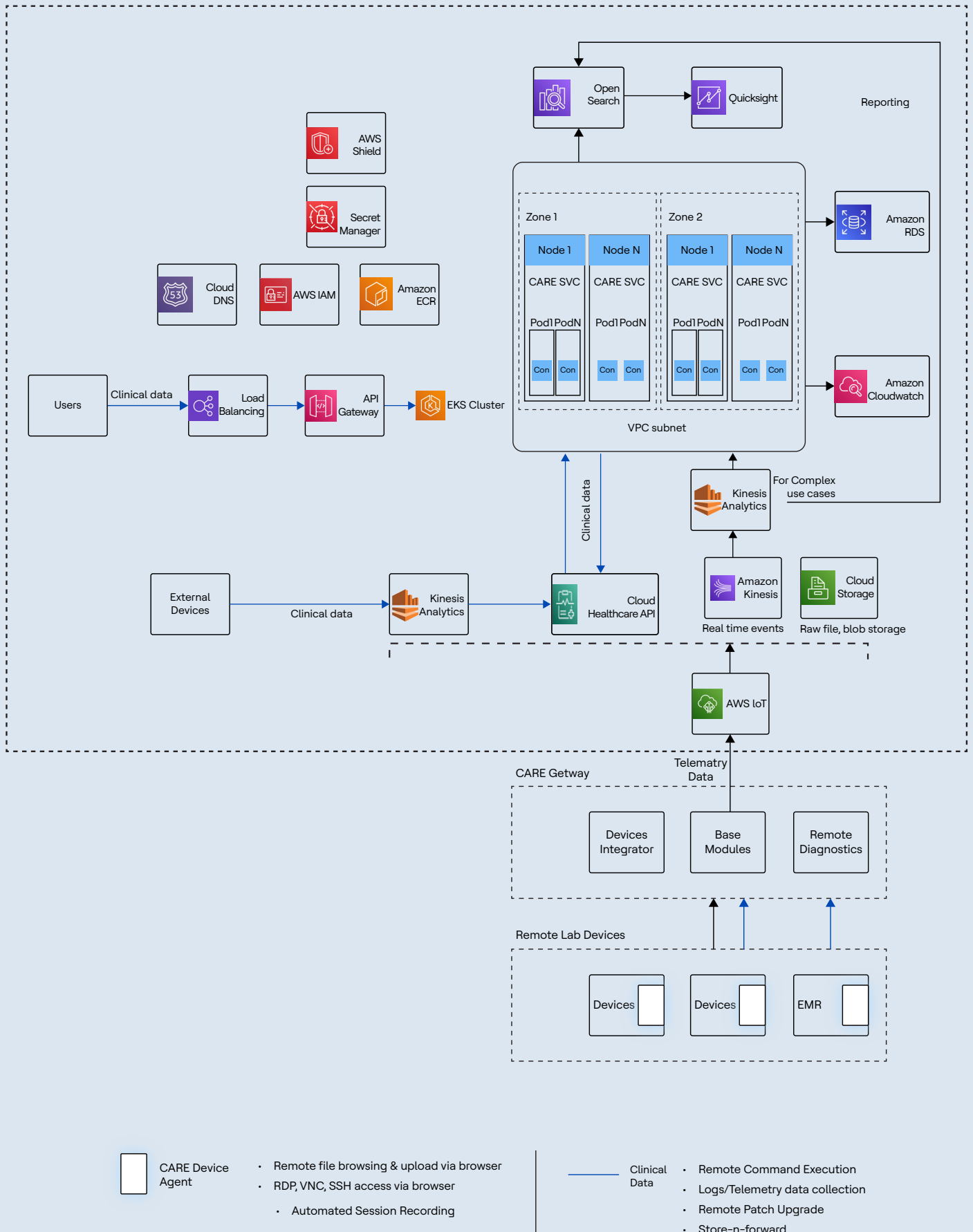- Integrated log management for centralized logging, notification and custom dashboard etc.

Business challenges addressed

- Without a "reuse/ foundation" approach to software, organizations end up having significant redundancies in infrastructure, licenses, people and processes, thus leading to an inefficient delivery of services
- Creating a platform that can act as a foundation to launch business services requires significant investments in terms of cost, skill and time
- A global service creates different code base of comparable functionalities, thus leading to increased cost of maintenance of these applications
- With high pressure on cost and time to market, it is difficult to approach software as a "holistic" solution

Why CARE™?

- In-built tools, workflows, rule engines, libraries, etc. enables rapid creation of multi-tenant apps and the conversion of single tenant apps to multitenant apps
- Easy on-boarding of new countries or entities with easy-to-use configuration sans any additional development effort
- Execute complex test scenarios involving two or more development platforms working in tandem
- Extensibility to address data model extensions specific to country/brand/ branch
- Support for single instance and distributed deployment models

CARE™: High-level architecture - AWS

AWS Shield

Secret Manager

Cloud DNS

AWS IAM

Amazon ECR

Users — Clinical data → Load Balancing → API Gateway → EKS Cluster

Open Search → Quicksight

Reporting

Zone 1

Node 1 | Node N
CARE SVC | CARE SVC
Pod1 PodN | Pod1 PodN
Con Con | Con Con

Zone 2

Node 1 | Node N
CARE SVC | CARE SVC
Pod1 PodN | Pod1 PodN
Con Con | Con Con

VPC subnet

Amazon RDS

Amazon Cloudwatch

Clinical data

Kinesis Analytics — For Complex use cases

External Devices — Clinical data → Kinesis Analytics → Cloud Healthcare API

Amazon Kinesis — Real time events

Cloud Storage — Raw file, blob storage

AWS IoT

Telematry Data

CARE Getway

Devices Integrator | Base Modules | Remote Diagnostics

Remote Lab Devices

Devices | Devices | EMR

CARE Device Agent
- Remote file browsing & upload via browser
- RDP, VNC, SSH access via browser
- Automated Session Recording

Clinical Data
- Remote Command Execution
- Logs/Telemetry data collection
- Remote Patch Upgrade
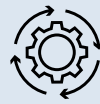- Store-n-forward

How CARE™ helps

CARE comes with a standardized application architecture stack that can be shared across applications
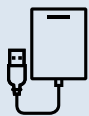
CARE comes with pre-integrated security functionality to secure the application built on top of it's platform

CARE provides you a foundation with hierarchical multi-tenancy support across new distribution channels or with new partners

CARE comes with support for code generation, automated build and development thus reducing the cycle time

CARE framework comes with reusable components and device connectivity along with automation tools for faster and easier development

CARE provides the ability to handle different tenant specific configurations of UI, the systems functional or non-functional behavior and the services

CARE™ acceleration through software development

Architecture and design	Development	Testing	Deployment
• Well defined Microservices Architecture	• Pre-Integrated technology stack for day zero development	• Pre-Tested Components for reduced testing effort	• Cloud Tested Deployments
• Different archetypes for different needs	• Code generation within IDE for data models, validations and UI	• Pre-Tested security for all core components leading to near zero security testing effort	• Compatible to be deployed in Data Centers as well as in any public cloud
• Takes care of all nonfunctional requirements	• Automatic Unit Test Case Generation	• Pre-Tested Performance and Scalable Components for reduced performance testing cycles	• Integrates well with any monitoring infrastructure including public cloud (like cloud watch)
• Well defined and up to date technology stack	• Runtime features allow rapid development		• Administration Console to administer the application
	• Integrate with different system with ease		• Centralized Logging
			• One Touch Deployment with container support

CARE™ proof points

For a Fortune 500 American MNC involved in manufacturing of medical devices, CARE helped reduce TTM by 52%, development time by 26%, testing time by 18% and deployment time by 10%

For an American MNC involved in supply of ophthalmic surgical products, CARE platform helped transform a disjoint manual process into a connected device environment with centralized database. This is expected to impact business growth by up to 45%

For a Fortune 500 American MNC involved in selling of business services and document technology products, CARE platform achieved an overall 40% reduction in time to market of the new solution

CARE™ benefits

Low risk/ higher rate of success

- Abstraction of technology complexity, focus on business requirement
- Get it right at the first time itself
- Low Risk technology approach acts as a bridge between Build Vs Buy. Follows standard technology patterns allowing standard skills to be leveraged

Acceleration

- Reusable components accelerate software development by at least 30%
- Automation to ease code development
- Pre-Conceptualised approach to a global platform saves time in all phased of SDLC (requirement, architecture, design, implementation and deployment)

Quality

- Pre-built components driving "Get it right first time" benefits
- Best practices enforcement through enforced architecture/design
- Pre-tested components reduces time for functional, nonfunctional, security and deployment testing

TCO

- A platform-based approach reduces the cost of building new services by upto 52%
- Open-Source Components allows the overall cost of ownership to be low
- An "administration first" driven approach allows better management and delivery of services across the globe

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HCLTech is a global technology company, home to more than 221,000 people across 60 countries, delivering industry-leading capabilities centered around digital, engineering, cloud and AI, powered by a broad portfolio of technology services and products. We work with clients across all major verticals, providing industry solutions for Financial Services, Manufacturing, Life Sciences and Healthcare, Technology and Services, Telecom and Media, Retail and CPG, and Public Services. Consolidated revenues as of 12 months ending September 2023 totaled $12.9 billion. To learn how we can supercharge progress for you, visit hcltech.com.