

Fixed or Mobile WiMAX

CRESTEL's 4C Advantage for WiMAX

Customer

- Single bill for multiple services delivered on WiMAX network
- Customers can recharge their subscriptions through multi-mode recharge interfaces
- Manage subscriptions, Change Plans, View Bills and Submit Online Payments from Customer Web Selfcare
- Multiple Authentication Methods
- Multiple client device support
- Flexible option on plans
 - Flat fee to Pay per use
 - Easy option for change of plans

Competition

- Faster Rollout of services
- Single platform supporting both WiMAX as well as existing networks
- Single service delivery platform for Prepaid and Postpaid
- Integration with upstream OSS/BSS systems
- Multi-Vendor Support in Provisioning eliminates vendor lock-in
- Profitable Value Additions
- QoS to Subscribers

Channel Partner

- Revenue sharing
- Partner Settlement
- Multi-party billing
- Prevention of revenue leakage
- Easy access to services and operations

Content Partner

- Online Revenue realisation
 - Tracking through partner webselfcare
- Flexible business models and agreements
 - Support next generation networks

CRESTEL Solutions Overview

CRESTEL is the carrier-grade billing, customer care, mediation and provisioning platform that enable next generation data, voice and video services over wireline and wireless networks. CRESTEL's integrated approach to the 4Cs of the convergent market place - customers, competition, content and channel partners enhances service providers' competitive strengths.

Industry Scenario & Business Requirements

WiMAX based on IEEE 802.16e, delivers cost-effective wireless broadband access for fixed and mobile services across wide geographical areas. WiMAX holds high potential for growth with its offer of high speed wireless broadband and has emerged as a highly efficient and cost-effective alternative to the scanty and expensive wireline infrastructure in remote locations.

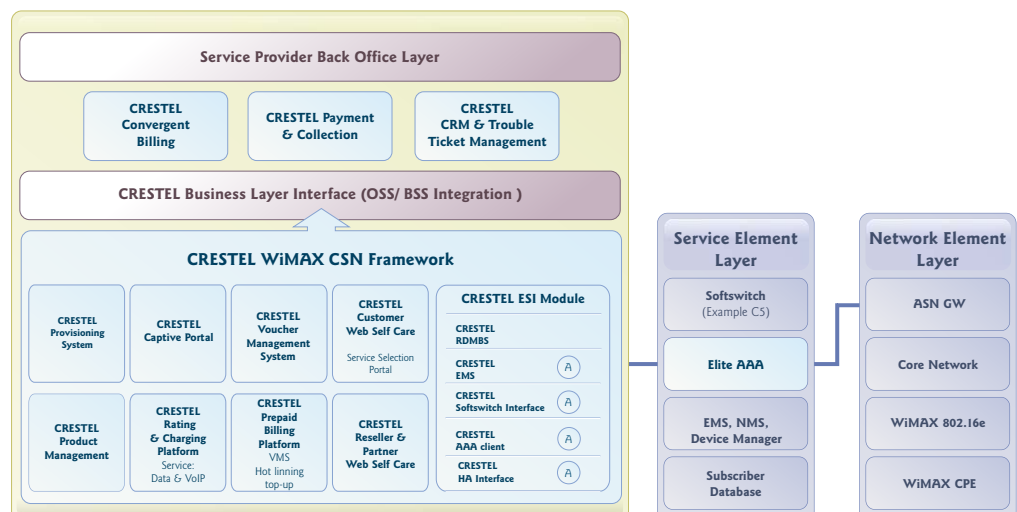
As the worldwide broadband market grows at a tremendous pace and service providers extend themselves to provide cost-effective broadband access in remote regions, analysts expect the WiMAX equipment market to rise exponentially, crossing 2 billion USD in 2009 to reach 3 billion USD in 2010.

Two factors hold the key to rapid rollout of WiMAX, on the one hand, it involves delivering service levels at par with traditional broadband counterparts, including service provisioning, rating and charging for complex service packages and more; on the other hand, it involves seamless integration with these traditional networks.

CRESTEL for WiMAX

CRESTEL CSN solution ensures rapid service rollout and integration with existing networks, delivering a cost-effective WiMAX service. Its partnership with global equipment vendors supports auto provisioning of CPE, ensuring rapid service rollouts and customer activation in addition to preventing single vendor lock-in. CRESTEL's inbuilt dual AAA brings to providers real-time rating and charging and a single service delivery platform for prepaid and postpaid billing with support to innovative value-added services on WiMAX.

A highly scalable solution, it is designed to meet the requirements of WiMAX networks with initial deployments of a few thousand users, with rapid scalability to hundreds of thousands of users. In addition, it offers great flexibility, allowing service providers with legacy OSS / BSS systems to deploy just the CRESTEL WiMAX Service Enabler module, or a combination of the Prepaid Billing System and Service Enabler Module or the complete CRESTEL Convergent Billing Solution.



Modules

- EliteAAA
- Elite Policy Manager
- Service Selection Portal
- Elite Charging Gateway
- CRESTEL Convergent Rating & Charging (OCS)
- CRESTEL Prepaid Billing
- CRESTEL Convergent Billing
- CRESTEL Provisioning
- CRESTEL Customer Care

WiMAX Solution Features

Standard Features and Services

- Single service delivery platform for Prepaid and postpaid
- Multi-Mode Recharge interfaces
- Real time deactivation of customer
- Multiple Concurrent Sessions
- Roaming and Partner Settlement
- QoS through provisioning
- Multi-language IVR Support
- Multi Currency support
- Support for lawful intercept
- Multiple Authentication methods PPPoE, UAM
- Easy integration with other OSS/BSS modules
- Modular architecture
- Multi-protocol Radius and Diameter.
- Web based subscriber portal

Provisioning

- Provisioning, Pre-provisioning & Self Provisioning of CPEs
- CPE Management- Change Customer CPE, Assign CPE
- Bulk Provisioning in Network EMS
- Real time service activation
- Integrates billing system for creation of subscriber profile

Rating & Charging

- Real Time Rating & Charging with configurable rule based rating engine
- Voucher Management & Recharge System
- Account recharge via credit/debit card and balance transfer
- Supports bundled voice and data services offering
- Rating by duration, volume, step-volume, location
- Tariff switching support
- One-time Charging Support
- Resource Pool Management
 - Time and volume-based prepaid quotas to support multiple service models.
- Balance management
 - Immediately suspends sessions upon completion of a prepaid balance, helps to minimize revenue Leakage.
- Roaming support

Billing

- Multi tier Billing Supports up-to 3 layer
- Customer segmentation and grouping
- Single bill includes all the services
- Limited cost control for postpaid
- Low cost of integration and operation
- Voiding and regeneration of Invoices
- Electronic Bill Presentation in customer webselfcare
- Online Payment support with multiple
- Payment gateways
- Itemized Bill including all the recurring, non recurring, limited recurring, usage
- Multi-tier Discounts at
 - Charge, package, customer and custom attribute level
 - High-usage
 - Customer loyalty
 - Group based
- Output bills to external systems for (ERP/ Accounting

- Systems, Bill presentment, SOAP/ XML, Web services)
- Export bills to 3rd party upstream billing system
- Supported Bill format (HTML, PDF, XML)

Captive Portal

- Web Based Authentication portal for Subscriber self service sign up or for Online sign up
- Easily customizable GUI for branding and advertising
- Shows complete details of the balance (remaining time / data) of the package used by the Subscriber
- Single Login (Webselfcare, Service selection portal, Captive Portal)

EliteAAA

- A Future Proof Dual Stack WiMAX AAA Server
- Hotlining or subscriber redirection support
- Mobile IP key derivation support
- Certificate base Authentication
- Intelligent Radius Proxy & EAP Authentication Support
- An active mediation system interfaces with Diameter/Radius standardized for WiMAX for carrying out the AAA functionality
- Session based & Flow based accounting enables service providers to deploy innovative flow based pricing schemes
- Pre-provisioned QoS parameters- EliteAAA communicates to network elements also supports bandwidth rates.
- Vendor specific attributes are provided for interactions with proprietary security systems. EliteAAA complies with the latest RFCs.
- Single-platform solution with common policy and profile repository to control access to advanced services across multiple networks in fixed, mobile, and converged deployments.
- Support for Over the Air Provisioning & Interface with Device Manager
- Real-time session management to enable mobility, roaming, security, and usage tracking
- Real-Time session disconnection based on re-authorization functionality
- Carrier grade performance and scalability to support business expansion in WiMAX
- Seamless interaction with multiple external AAA servers and roaming partners.
- Multiple business models, allowing Service Providers to define and manage subscriber policies and profiles centrally while extending local control to business or retail customers.
- Aggregates, correlates, formats, and automatically streams records to appropriate billing and settlement systems with no human intervention.
- Audits records into and out of the system, ensuring record accuracy and consistency
- EliteAAA uses RFC-standard DHCP servers for management of global IP pools.

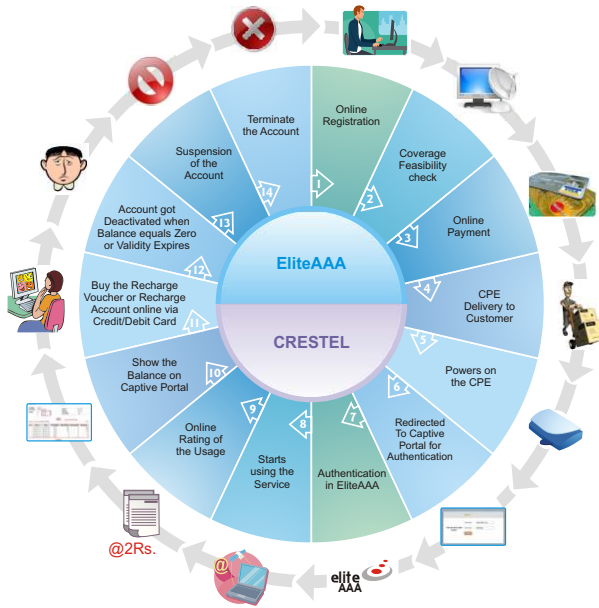
Customer Management

- Customer Acquisition/Creation,
- Deactivation & Termination,
- Change Plan & Renewal



Customer Acquisition Flows

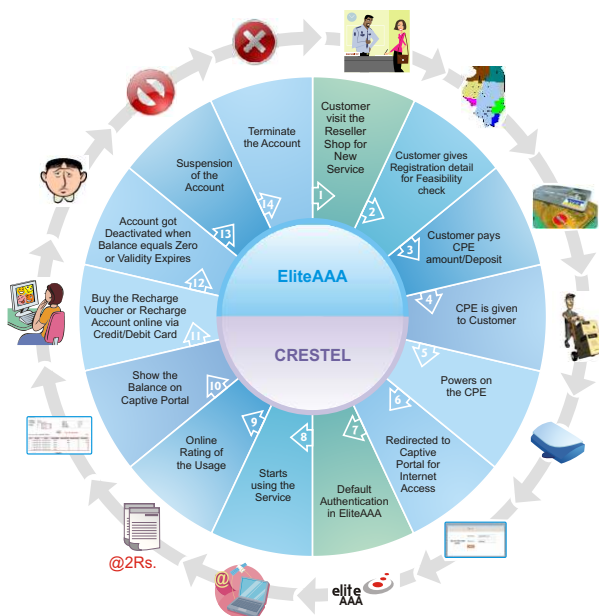
I. Online Customer Acquisition flow



Steps

1. Online Registration
2. Coverage Feasibility check
3. Online Payment
4. CPE Delivery to Customer
5. Authentication in EliteAAA & enables Over the Air provisioning
6. Subscriber Starts using the Service
7. Online Rating of the Usage
8. Show the Balance Management in Captive Portal
9. Buy the Recharge Voucher or Recharge Account online via Credit/Debit Card
10. Account gets deactivated when Balance equals Zero or Validity Expires
11. Suspension of the Account & Terminate the Account

2. Over the Counter Customer Acquisition flow



Steps

1. Customer visit the Reseller Shop for Service
2. Coverage Feasibility check
3. Customer pays for CPE
4. On powering on CPE is redirected to Captive Portal for registration
5. Default Authentication in EliteAAA
6. Subscriber Starts using the Service
7. Online Rating of the Usage
8. Balance Management in Captive Portal
9. Buy the Recharge Voucher or Recharge Account online via Credit/Debit Card when balance reaches recharge level.
10. Account get Deactivated when Balance equals Zero or Validity Expires
11. Suspension of the Account & Terminate the Account



Technical Specification

- 100% Java Built -EJB Architecture, Servlets, JSP, XML, RMI, JAVA 2.0, JNDI, JNI
- Hardware Independent Architecture Platform-LINUX, SUN SOLARIS, HP UNIX, IBM AIX
- RDBMS-ORACLE 10g with RAC Support
- Web Services Compatible / EAI Support-Support for HTTP/XML & SOAP
- Unix Cluster Support- Redhat HA server, Sun Cluster V3.0, Veritas Cluster
- Directory Servers -Open LDAP, iPlanet, Openwave LDAP
- Application Server Support -Oracle 10g AS, JBOSS, Tomcat

About Elitecore Technologies Ltd.

Elitecore Technologies is the provider of CRESTEL - Billing Revenue Management & EliteAAA - Core Network Session Control Software to enable Next Generation Voice, Video & Data Services offered by Tier-1 to Tier 3 Telecom operators / service providers over Wireline or Wireless Networks offered directly and through distribution channels. Elitecore serves customers across the globe with presence in more than 75 countries and is a Carlyle invested company-The Carlyle Group is a global private equity firm with USD 84.5 billion under its management. For more information, visit Elitecore Technologies Ltd. at www.elitecore.com



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