

Customer Care, Campaign and Loyalty Management

Prepared for

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1. INTRODUCTION

The objective of this document is to outline a technical approach to a comprehensive joint solution between Microsoft and Business Logic Systems to address Customer Care, Campaign and Loyalty Management requirements in Communication Sector. This solution will help provide Telecom Service Providers with unique combination of products and services that exceed their expectations in terms of cost, capability and speed of delivery.

In order to achieve this, the joint solution leverages Customer Care Framework (CCF) from Microsoft and InTeleStage Loyalty Suite from Business Logic System.

Microsoft Customer care is a flexible and modular solution framework to accelerate the development, integration and roll-out of customer care solutions integrating with underlying LOB Applications to provide a unified view (360°) of customer information

InTeleStage™ Loyalty Suite is a Customer Profiling, Campaign Management, Campaign Reporting and Loyalty Management System

1.1 Microsoft Customer Care Framework

The Customer Care Framework enables Operators to create a converged infrastructure that can streamline management of an increasing number of diverging business operations.

Microsoft's Customer Care Solution is based on the Microsoft .NET Framework and leverages the power of Microsoft's product stack, fully realizing Telecom Service Provider's existing investments in Microsoft's Windows and Office system platforms.

Though deployed on Windows and .NET, CCF is completely platform and application agnostic, meaning the rapid integration capabilities, and enhanced end-user capability will be exposed to all of backend applications and systems once integrated.

By this integrated approach Telecom Service Provider's achieves customer care, campaign management and loyalty capability including user & role based log in to applications, elimination of re-keying between disparate screens and systems, the pre-fetching and intelligent "pre-entry" of customer and product information based on the customer's information or services, and "Click-Next" cross-application workflow to assist CSR users through the multiple workflow steps.

In contrast to other architectural approaches CCF delivers

- The **Fastest time** to solution
- Makes **information more accessible, across systems and platforms**
- **Improves the FACE** (Faster, Accessible, Cost-Effective, Easier) of the customer care experience
- More **cost-effective**, and is easier to implement;



Multiple Interaction Channels

1.1.1 Cost Savings and Increased Productivity

The Customer Care Framework can increase user productivity by pre-fetching customer information and sharing it between different applications. This “intelligent sharing” eliminates redundancy and dramatically reduces the time user must spend searching and entering data to complete a transaction. CCF also provides numerous components and features for multi-channel and self-service customer care. The potential cost saving and productivity benefits include:

- Accelerating the time to solution and enabling the realization of the benefits of an integrated desktop in minimal time and at a lower TCO;
- A **Customized User Interface** accesses multiple data sources to provide the highest possible Customer Service Representative (CSR) efficiency and speed up Entry and Completion time.
- User **single sign-on** speeds information retrieval by eliminating the inefficiency of signing on and off of multiple systems to gain access to all of a customer’s relevant information;
- Providing the ability to continuously streamline operations by analyzing CSR usage patterns and **work flow**;
- Displays a **unified view** of customer information (**360°**) through a user-friendly and customizable interface providing the best information processing;
- Empowered users who can focus on serving the customer rather than navigating multiple systems and working through complex system processes;
- **Faster delivery** of more complete information to users and allow them answer questions more quickly and completely;
- Less time training users on how to use multiple systems to complete a simple business transaction;
- **Drastic reductions** in looking up information and to resolve the customer inquiries;
- **Eliminating redundant data entry** which translates to fewer miss-keys of incorrect information;

- CCF **increases user productivity** by pre fetching customer information and sharing it in smart ways between different applications, dramatically **cutting the time** user must spend searching for and entering data to complete a call;
- Ability to continuously improve and streamline operations using an iterative software development and release strategy;
- CCF **seamlessly integrates** with underlying business applications without any changes to existing systems (not a rip and replace approach);
- Session management and single sign on reduce re-keying and front-end inefficiencies;
- **Real Time Communication** integration enables instant messaging among multiple levels of users. This is an efficient toll for online assistance and coaching.
- Simplified administration module, an Admin Console for managing users and configuration in the system;
- The CCF database allows for **logging and reporting** on user interactions with the system.
- CCF provides application isolation by which prevents crashing of the entire system when individual hosted application behaves in an unexpected manner.
- The CCF solution includes support for simplified (push) deployments and updates using SMS (System Management Server)
- CCF supports **multiple interaction channels**; Voice, Web, Email, Chat etc. This allows customers the flexibility to reach CCF enabled contact centers via multiple media types.

1.1.2 Technical Benefits

The following are the technical advantages of CCF

- Solutions based on CCF are very **competitive on price** (Windows Total Cost of Ownership [TCO]) and speed to market (.NET);
- **Microsoft platform** and Extensible Markup Language (XML) Web services results in **faster time to market** and less expensive customer solutions;
- The CCF **multi-channel** server provides a platform to plug-in capabilities from multiple partners to extend its capabilities to numerous interaction types;
- Service Oriented Approach;
- Web Services based **Service Oriented Architecture (SOA)** that encapsulates, manages and interoperates with LOB systems in a way that significantly enriches customer service and sales capabilities
 - Staying in sync with ever increasing business changes
 - Reusing software assets
- CCF utilizes a **standards**-based technologies approach, incorporating XML, HTTP(S) and SOAP
- By this, CCF provides greater flexibility to **co-exist in a heterogeneous environment**.
- CCF supports a **front-end integration approach** (fast implementation cycles) as well as a **back-end integration approach** (longer implementation cycles) or a combination of both. The front-end integration, with intelligent sharing of information between the embedded front-ends, is a unique capability of CCF compared to other solutions in the market.

1.2 Business Logic System(BLS) InTeleStage™ Products

Business Logic Systems Ltd **develop and implement affordable** customer loyalty and support software solutions for mobile network operators that need to shift their focus from customer acquisition to customer retention, reducing churn and increasing profitability and ARPU.

InTeleStage™ LOYALTY Suite is an advanced and fully automated end-to-end Campaign & Loyalty Management solution, specifically designed for Telecom service providers. It integrates all the elements necessary to plan, execute and control Campaigns & Loyalty Schemes. Below are some key features:

- **InTeleStage™** is a **user friendly GUI that empowers Marketing to create, test and launch campaigns within A DAY**, with no IT or Engineering involvement. This feature is fundamental to marketing to be creative and dynamic (quick to market).
- **InTeleStage™** has the ability to **monitor a segment/group of subscribers before, during and after** the campaign. This will establish if the campaign was a success and if the campaign changed the usage patterns long after the campaign had ended.
- **InTeleStage™** has the ability to apply **multiple campaigns or loyalty schemes simultaneously** on **Profiled Segments** in relation to Usage, Recharge, and Demographic Data etc.
- **InTeleStage™** has the ability to run **“submarine campaigns” to increase subscriber growth** by identifying key subscribers or high ARPU subscribers by running creative campaigns to get these subscribers to get their most called mobile number (off-network/competitor) to join your network. This is a unique way to increase growth in a saturated market.
- **InTeleStage™** has the ability to **manage loyalty bonus/rewards linked to multiple campaigns** for a subscriber or targeted group. And **also import loyalty points from third-party applications/platforms** and manage them as a complete Loyalty Points/Rewards management system.

The InTeleStage™ LOYALTY Suite has been specifically designed as a comprehensive, all-in-one solution that provides operators with increased retention rates through loyalty measures.

The InTeleStage™ LOYALTY Suite is an off the shelf solution, designed to integrate easily into any existing mobile network infrastructure making it easy and cost effective to deploy for Telecom service providers. It Brings together business loyalty, customer profiling, campaign management and loyalty programmers to boost prepaid mobile customer lifetime by analyzing customer trends, profiling by usage and delivering targeted loyalty rewards, which can extend the lifetime value of the customer by up to 30%.

Apart from LOYALTY Suite, Business Logic System also comes with below Telecom products

InTeleStage™ Reporter

InTeleStage™ LOYALTY Suite can be complimented by InTeleStage™ Reporter, a separate but, if implemented with InTeleStage™ LOYALTY Suite, fully integrated application providing essential

Business Intelligence in the forms of Reports based on the already collected usage and behavior information.

InTeleStage™ Service Centre

Service Centre is a powerful call centre solution that combines intranet design with a feature rich, programmable environment. Specifically designed to address the prepaid business segment, Service Centre can also be customized to fit to the postpaid network platforms.

InTeleStage™ Recharge Manager

Recharge Manager is an advanced, platform independent voucher management solution for Mobile and Fixed Prepaid Services. Recharge Manager can be easily customized to meet every Telecom service provider's Voucher processes.

1.2.1 Cost Savings

Business Logic Systems prides itself with the rapid implementation of InTeleStage LOYALTY Suite. On the the application is highly cost-effective in terms of financial and time resources as its build as a user friendly and flexible solution for marketing with no or minimal involvement from engineering or IT; moreover it requires little human effort for maintenance.

1.2.2 Benefits

The benefits of using Loyalty Suite go to both the operator and the subscribers. The operator benefits from the wide range of operations carried out by the application Segmentation, campaigning, rewarding and reporting are all embedded in a single cluster of solutions. Loyalty in itself means better retention costs and increased revenue for the operator.

Moreover, the cost-effective, all-in-one solution requires little operational expenses. On the other hand, subscribers take full advantage of the reward bonuses, they grow to appreciate the operator and become more loyal.

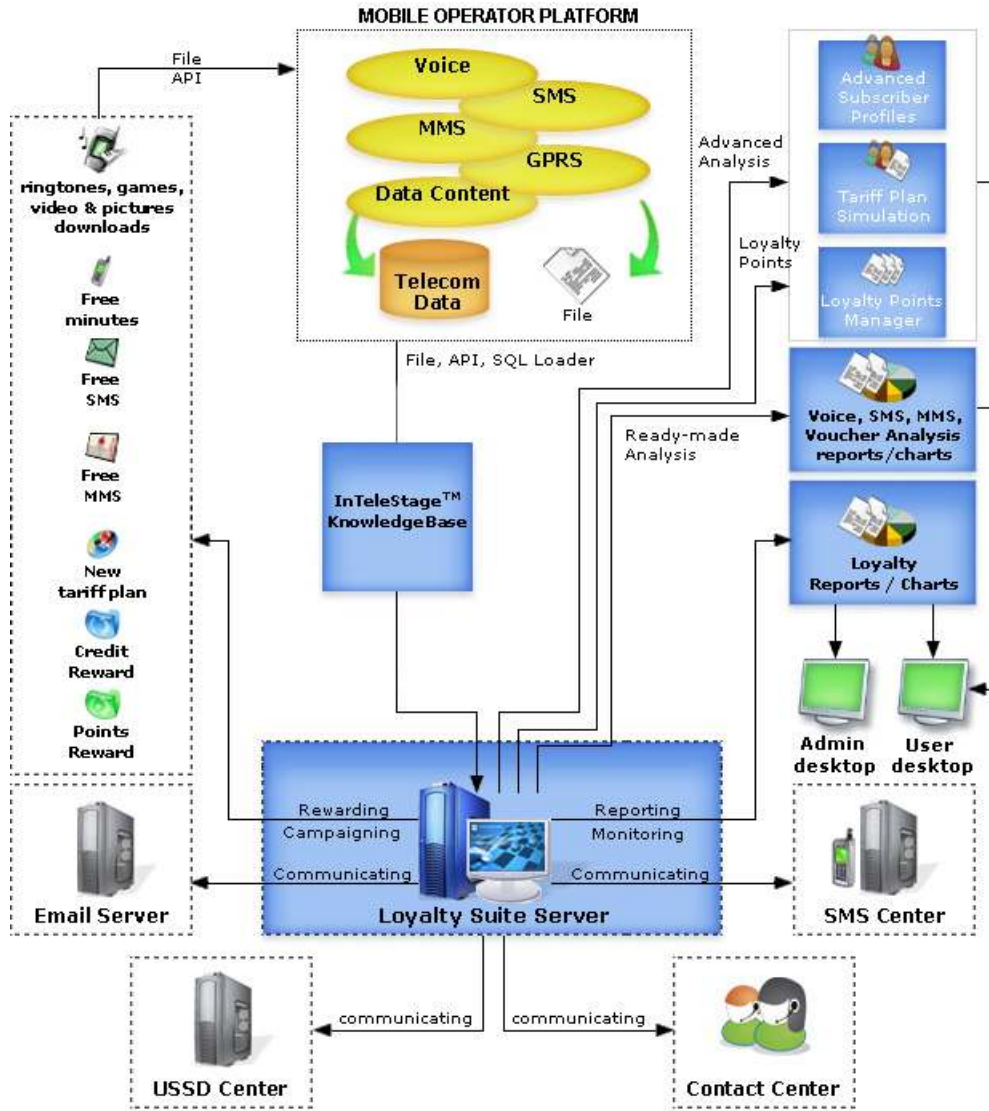
The benefits of InTeleStage™ LOYALTY Suite could be summarized, as follows:

- End-to-end loyalty campaigns management
- Knowledge base from known data
- Potential Behavior prediction by segmentation
- Ring Leaders Identification
- Multiple targeted campaigns simultaneously
- Dynamic interactive notifications to subscribers throughout promotions
- Customer rewards based on any field in the Event Record
- Customer lifetime value extension
- Control and reporting

- Intuitive graphic user interface, ability to build, test and launch a campaign/loyalty scheme within a day
- Multi-currency, multi-language features included
- Highly scalable hardware and software architecture
- Rapid and cost effective implementation
- Effective Data Presentation

1.2.3 InTeleStage Technical Architecture

The following diagram describes the InTeleStage™ Loyalty Suite components and their advanced inter-connectivity. The data used in the analysis process is used in a series of processes that refine it and employ it in proactive loyalty marketing.



The InTeleStage™ LOYALTY Suite uses the data residing in the Telecom service provider’s platform. The intelligence on the subscribers is stored in the InTeleStage™ Database; from this repository, where the InTeleStage™ LOYALTY Suite draws the necessary profiles for deploying the loyalty campaigns.

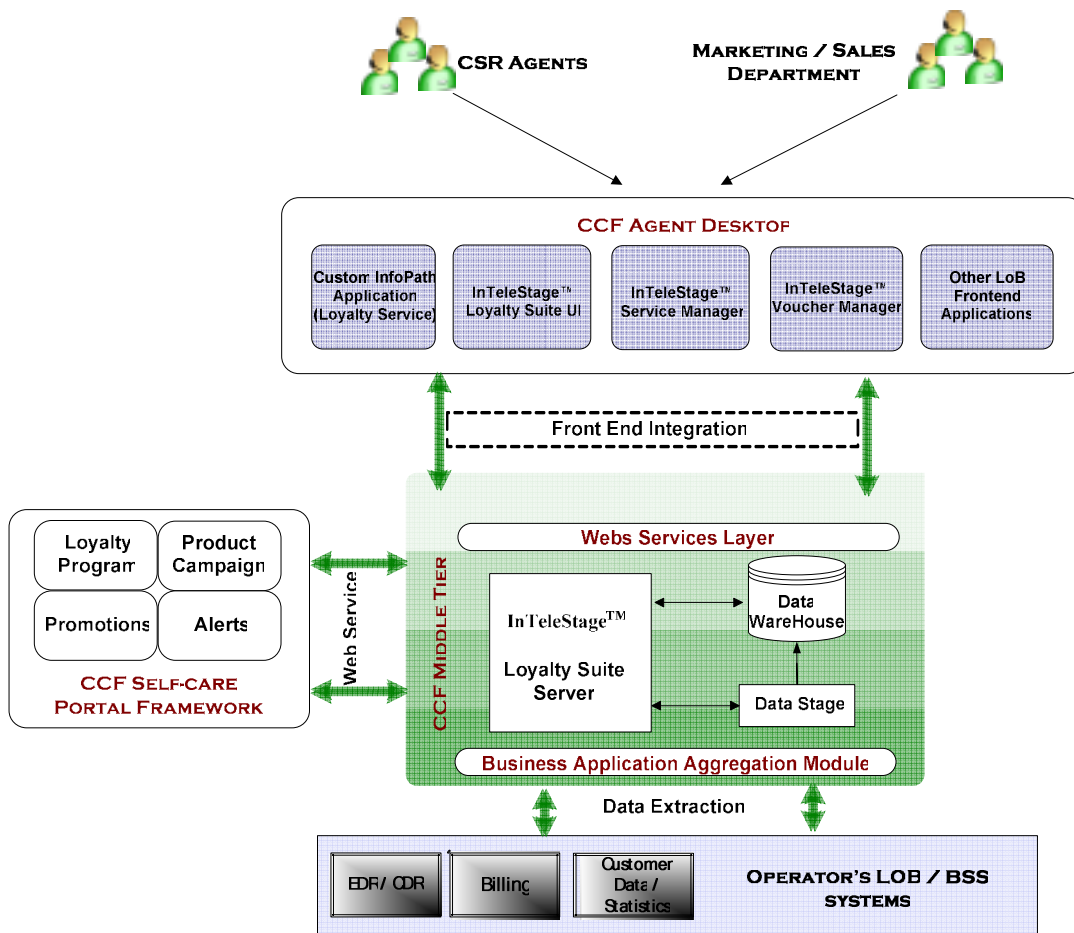
Communication is carried out through the dedicated SMS and e-mail channels – which ensure that the operator addresses the subscriber in a personalized way.

2. JOINT SOLUTION ARCHITECTURE

2.1 Architecture Description

The Solution Architecture comprising of Microsoft Customer Care Framework and InTeleStage LOYALTY Suite will help the CSR Agents as well as Marketing and Sales Teams in delivering the Customer services more efficiently as well as perform the enterprise level activities related to campaign and Loyalty managed **through a single Unified View**.

Combined with InTeleStage Loyalty Suite system, CCF will provide an end-to-end, flexible solution architecture that improving the quality of customer service by **up-selling and cross-selling** while reducing costs of customer service



The combined architecture is highly modular SOA based architecture, allowing components to be organized into separate logical entities that can be added and extended when and where needed

This architecture is designed to performing both Front End Integration as well as Back End Integration based on scenarios. For Front End Integration CCF Agent Desktop will be used.

Following applications would be integrated in Agent Desktop using **Front End Integration**

- **InTeleStage Loyalty Suite UI**
- Custom built **InfoPath applications** Using Web Services exposed by Loyalty Server
- **InTeleStage Voucher Manager**
- **InTeleStage Service Manager**

For the **Backend Integration** approach, CCF Middle tier will be used. CCF will expose various Telecom Service Providers Line of Business Application (LOB) / Business Support Systems (BSS) applications through Web Services using the API's and Adapters for these systems.

The business Application and Aggregation Module (**BAAM**) will be used to perform the **Data Extraction** from the Telecom Service Providers various LOB and other BSS systems. This Data Extraction will transfer the data from these systems into the InTeleStage Data Stage, from where it is processed for use by the Loyalty server.

Further **Loyalty server** exposes its functionality as API's which will be exposed as web services in the CCF Middle Tier Web service Layer. These web services include Loyalty and Campaign web service, Promotions, Alerts web services and other functionalities of Loyalty server.

Various InfoPath based applications will be building using these XML web services inside the CCF Middle Tier exposing the functionality of Loyalty Suite Server to the Call Center Agents. These InfoPath applications will be hosted inside CCF Agent Desktop

Also this web services Layer containing campaign and loyalty web services can be consumed by multiple channels like Websites of dealers and channel partners as well as CCF Self care Portal to provide the Advertisements and campaigns

CCF Self-Care Portal framework built on SharePoint technology hosts multiple web parts featuring Loyalty program, product promotions, campaign messages and alerts for variety of target audience such as Customers, Partners and Dealers. This portal framework extracts details of the respective services through CCF Middle Tier using web services.

2.2 Components of Architecture

2.2.1 CCF Agent Desktop

CCF Agent Desktop will be used as Presentation Layer and UI Interface for CSR Agents as well as for the Marketing and sales Teams to help customers provide the needed services as well as perform the Enterprise functions

Automation / hosting of Front End are performed using Surface integration facility of the CCF which will be accomplished using Microsoft Automation of UI (MAUI) or Microsoft Active Accessibility (MSAA).

CCF supports features such as

- Single Sign On facility which allows mapping & managing user credential to access the InTeleStage Loyalty Suite and InfoPath applications

- Multiple customer session at a given time, define and manage hierarchical level of users to provide role based access to the applications,
- Design and maintain rule/workflow engine to define and prioritize order processing steps and reporting module to generate audit trail business logs.

2.2.2 CCF Middle Tier

CCF's flexible Service Oriented architecture (SOA) supports both front and back-end integration approaches. Unlike other Enterprise Application Integration (EAI) projects that require extensive middle-tier business logic and data integration which is costly and time consuming, CCF middle tier integrates respective backend application.

In this Architecture CCF Middle Tier will comprise of

- **XML Web service Layer**
- **InTeleStage Loyalty Server**
- **InTeleStage Data Stage**
- **Business Application Aggregation Module (BAAM)**

The BAAM component allows multiple types of applications to be brought together by putting backend business logic and extracting information from Operators LOB / BSS Systems through a standard API using protocols such as .NET, XML based WSDL and SOAP. It is capable of performing any type of Data abstraction.

The middle-tier is constructed using multiple XML Web services from various sources that work together regardless of where they reside or how they were implemented.

This middle tier component will be utilized by smart client, InfoPath applications to accomplish customer care transactions.

2.2 Technical Features of Joint Architecture

1. Robustness

- i. Both InTeleStage LOYALTY Suite and CCF are designed around .NET framework, which provides a robust feature for Integration

2. Scalability

- i. The proposed architecture is designed to both scale-up and scale-out.
- ii. Scaling out will be implemented using Network Load Balancing services provided by windows 2003. For network load balancing a server farm will be created. This is also called cluster of server. This is also useful if number of application user increases and application requires more processing power then number of server in a cluster can added. Network load balancing services will automatically detect server having more resources in cluster. It will transfer incoming request on that server.

3. Scaling Up

- i. Increase in Server resources help in performance enhancement.

4. Scaling Out

- i. Solution Architecture supports a Clustered deployment of Application. A Web Farm can be setup in which Servers can be added as and when required.

5. Performance

- i. Conformity to Best Practices to ensure enterprise scale irritant free application.
- ii. The design confirms to OOPS base practices in order to increase code reuse, security and dynamism.

6. Manageability

- i. OOPS based design to ensure reusability and manageability
- ii. Distributed Architecture to ensure cluster based application supporting as many locations

7. Security

- i. Authentication and Authorization is made robust and secure by utilizing Windows Active Directory Services

8. Failover

- i. Web server cluster will provide a very robust failsafe mechanism. If any server in cluster fails, all the traffic will automatically routed to other servers in same cluster. Defective server can be taken offline for maintenance or taken out of the cluster and replaced entirely. The total number of servers in the cluster can be up to 32 physical servers. Same clustering approach is taken care in the middle tier and database as described in the deployment architecture.

9. Deployment

The deployment of the various components will be done in clustered fashion thereby providing a very robust failsafe mechanism. Clustered approach ensures the High availability of various systems. These servers will be configured for Load balancing

For the Deployment of CCF Agent Desktop, Intelligent deployment & updates will be done by MS System Management Services (SMS)

2.3 Security and Access Control

CCF Admin Console Tool

CCF Provides the CCF Admin Console Tool, which is used to configure Application Access Control for various agents based on roles. This tool is used to create and manage different Roles which can be created based on the tasks performed like Admin, Supervisors, BackOffice Operations, Agent users etc.

New Groups can be created and agents can be added to these Groups. Then **roles and groups can be associated to Hosted application** using the Hosted Application Mapping feature in CCF Admin Console

2.4 Enabling Technology

The Microsoft technologies that will be used to implement this solution are:

- Customer Care Framework (CCF)
- Visual Studio 2005 Team Foundation
- BizTalk Server 2006
- SQL Server 2005
- Windows Server 2003 [Enterprise Edition] with Active Directory
- SharePoint Server 2007