**Toyota Motor Sales, USA, Inc.**

BP_Logo_Small

BluePrint Process

Fleet- Trac

Supplementary Specifications

Version 1.3

|  |  |
| --- | --- |
| ***Current Version:*** | 1.4 |
| Rewrite Category: | FTC Project – Phase 1 |
| Application Category: | Fleet – TRAC |

Project Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Version Number** | **Date Updated** | **Revision Author** | **Brief Description of Changes** |
| 1.0 | 03/10/2015 | Cognizant Architecture Team | Initial Draft |
| 1.1 | 03/14/2015 | Cognizant Architecture Team | Baseline version |
| 1.2 | 03/21/2015 | Cognizant Architecture Team | Provided to ES version |
| 1.3 | 03/25/2015 | Cognizant Architecture Team | Updated for latest changes |
| 1.4 | 04/05/2015 | Cognizant Architecture Team | Fixed the comments provided by EA team. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Version Number** | **Approver Role** | **Approver Name** | **Embedded Approval and Date** |
| V1.4 | EA Architect |  |  |
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# Purpose/Usability

* The Supplementary specification document is intended to provide a high-level understanding of the architecturally significant areas of the system for the various stakeholders:
* EA Architecture Team
* Project Management Team
* Development, Support and Operations
* Testing Team
* Construct and Deploy Team
* This document will provide the reference standards & guidelines to be followed at various life cycles of application development and Non-Functional Requirements that needs to be addressed by the application. Details provided in the document are based on understanding of existing application requirements and specification.

# User Locations and Numbers

## User Base

### Current user Base: Fleet-TRAC

Synopsis of current applications that from existing Production usage will trigger Fleet-TRAC and the current user base for Fleet-TRAC:

|  |  |
| --- | --- |
| Current user Base | |
| No of users who can access Fleet-Trac | **3017** |
| No of active users (**80% defined Users (80)**) | **2413** |

### Projected user Base: FTC

* Based on the current user base information of Fleet the following projection has been derived.

|  |  |
| --- | --- |
| Fleet User Base : Projected | |
| No of applications in future that will trigger Fleet. | **None** |
| % rise in the number of active users for the applications that would trigger Fleet | **None** |
| Fleet projected increase in the user base  **Since there will be no raise in new application that will trigger**  **Fleet.** | **None** |
| concurrent logins | 482 – Estimated from 20 % of Active users |

### Scalability- FTC

a) The application needs be architected to be deployed in a clustered environment.

b) The application should scale up if the system resources are increased.

c) The application should scale out if more servers are added to meet the demand.

d) The application should application willsupport the Monitor Resolution **1280\*1024**

|  |  |
| --- | --- |
| Scalability Requirements | |
| * No of modules that are invoking currently | * None |
| * No of modules that are expected to use this in future | * None |
| * No of users in all modules invoking Fleet | * None |
| * % of users expected to increase | * None |
| * Peak usage days | * 5th 0r 10th day of every Month |
| * Peak usage time | * 10th day of the Month - Business hours 4 AM PST to 6 PM PST |
| * % of serious users | * 10% Total Active User base - 301 |
| * Additional functionalities/features that this module is expected to support | * None |

## User Groups

* The following user group is not defined in TBG and all the count was taken based on the users active past 12 months.

|  |  |
| --- | --- |
| **Fleet-TRAC** | |
| **Group Name** | **User Count in each Group** |
|  |
| Fleet Dealers | 389 |
| Fleet Customers | 321 |
| Fleet Customers (CID) | 36 |
| Fleet | 794 |
| TRAC - TMS Corp | 45 |
| TRAC Dealers | 1362 |
| TRAC - Region | 56 |
| TRAC - TMS Corp. | 14 |

## 

## User Roles

|  |  |
| --- | --- |
| **Fleet-TRAC** | |
| **Role Name** | **User Count in each Group** |
|  |
| Currently No Roles Defined in TBG – New TRAC and Fleet enrolled role will be defined in to be TESS migration. | TBD |

## Concurrency

* User volume and concurrency will be computed/determined based on the below two different categories for Fleet-TRAC
* **User Categorization**
* **Active Users(Concurrent Sessions):** Total logged in users in unit session time (80% of defined users)
* **Concurrent Users:** Total users making a transaction in unit session time (e.g. hitting an 'enter key' or receiving a response) [20% of active users]
* **Concurrent Transactions:** Total transactions in unit session time
* **Concurrent Hits:** Total Hits in unit session time
* **Number of pages:** includes both dynamic and static objects (Averaged across the complete website)
* **Active Transaction Per Session:** # of Active Users \* Requests by 1 Active User Per Session Time
* **Concurrent Transaction Per Session:** # of Concurrent Users \* Requests by 1 Concurrent User Per Session
* **Active Hits:** Active Transactions Per Session \* Pages Per Transaction \* No of Objects Per Page
* **Concurrent Hits:** Concurrent Transactions Per Session \* Pages Per Transaction \* No of Objects Per Page
* **Active Transaction Size Per Session (KB):** Active Transactions Per Session \* Pages Per Transaction \* Page Size
* **Concurrent Transaction Size Per Session (KB):** Concurrent Transactions Per Session \* Pages Per Transaction \* Page Size
* **Active Transactions Per Minute:** (Active Transactions Per Session / Average Session Time in minutes)
* **Schedule based on Getsudo cycle calendar (Reference October 2011)**

|  |  |
| --- | --- |
| **Getsudo cycle calendar** | |
| **Activity** | **# of days** |
| **Ordering** | 1 Day |

Reference:



Based on the above information the following specs have been derived for Fleet-TRAC rewrite

### Fleet-TRAC

|  |  |
| --- | --- |
| **User Volumetric** | |
| **Category** | **User Count** |
| Defined Users: (Existing users + Projected Growth) | 3017 |
| Active Users (**80% of Defined Users**) | 2413 |
| Peak Concurrent Users: (**20% of Active Users**) | 482 |
| Average Concurrent Users: (**50% of Peak Concurrent Users**) | 241 |

Note: The above % is derived based on the calculation from the production user access pattern. Please refer to [Appendix A](#_Appendix_A) for the detail specifications

# Sizing

A series can have models varying from 1 to 40.

## Response and Transaction details

* Response times & transaction details of existing application, which was obtained as part of Fleet elaboration process and detailed in the embedded document.



Total number of runs executed: 3

1. Business/SME user need to review the above numbers and confirm, if these are acceptable.
2. Identify particular pages/processes not meeting Business Team SLA and the new Monthly Forecasting design need to address the same.

## Sizing Requirements for Fleet-TRAC Rewrite Application

### Code Package

|  |  |  |
| --- | --- | --- |
| **Code Package Sizing Specifications** | | |
| **Category** | **Deployed to** | **Allocation** |
| J2EE application enterprise archive package  (EAR) – ***Includes space for EAR/Config Backups*** | Web logic | Approx. 500 MB |
| Perimeter Code Package  (Images, Flash, HTMLs, JS, CSS) | Webserver | Approx. 3GB |
| Scripts | Web logic | Approx.250MB |

### Log Files

|  |  |  |
| --- | --- | --- |
| **Log Files Sizing Specifications** | | |
| **Category** | **Deployed to** | **Allocation** |
| Application Logs   * *Retention – 30days* | Web logic | Approx. 10GB |
| Webserver Logs   * *Retention – 30days* | Webserver | Approx.10GB |
| Database Logs   * *Retention – 30days* | Database Server | Approx.10GB |

### Database Sizing

|  |  |  |
| --- | --- | --- |
| **Database Sizing Specifications** | | |
| **Category** | **Existing** | **Fleet-TRAC**  **Rewrite Allocation** |
| *DB2* | *1 GB* | *1 GB* |
| *SQL Server* | *1353 MB* | *1353 MB* |

# Performance

## Response Time

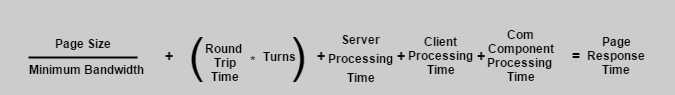
* Response time targets for Fleet-TRAC is displayed in the table below. The targets are expressed in seconds, and the specified times are dependent upon the complexity of displaying and/or processing individual user interface pages. Although the summary table below organizes page complexities by the total count of dynamic user interface controls included on a page, the complexity is actually determined by considering several factors.
* The general guide lines used for determining page response times in Fleet/TRAC is summarized as follows:
* **Page Size:** Page size is measured in Kbytes, the larger the page, the longer it takes to download.
* **Bandwidth:** Bandwidth is assumed to be sufficient between the user and the server
* **Round Trip Time:** Number of times return trips need to be made to fetch all data required to display information on a page.
* **Server Processing Time:** Server processing time is correlated based on the complexity of the data and Transaction.
* Data Complexity is categorized based on the following specification

1. Low Complexity: A basic web transaction involving little to no recursive or iterative logic (3 or less tables).
2. Medium Complexity: A web transaction involving a moderate amount of recursive or iterative logic (5 or less tables).
3. High Complexity: A web transaction involving a considerable amount of recursive or iterative logic (10 or less tables) and/or invocation of a rules service.
4. Very High Complexity: A web transaction involving and a considerable amount of recursive or iterative logic (20 or less tables) and/or large volumes of data and/or invocation of rules service.

* Transaction Complexity is categorized based on the following specification

1. Transaction complexity is determined by the operation being performed. SELECT are less expensive compared to INSERT/UPDATE.

* **Client Processing Time:** Client processing time is correlated based on the complexity of every page that gets rendered
* Page Complexity is determined by the number of custom HTML components that are rendered/populated as part of page setup. This also includes custom scripts.



Note that these response time target numbers are aligned with industry guidelines for web-based applications which suggest that typical user expectations for the response time of normal (i.e. low-complexity) page loads are under 5 seconds.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Complexity** | | | |
| **Low** | **Medium** | **High** | **Very High** |
| Average Response Time (in seconds) | 3 - 4 | 5 - 6 | 7 - 12 | 13- 19 |
| Expectation from Business Team | Need to improve or retain the current performance as per the industry standards. | | | |

Based on the complexity guidelines, the response time benchmarking for FTC. The following.

Note: The following Response time is being calculated with AS IS Response time in addition with COM component response time calculated using POC of one average API communication. We are aligning and bench mark the best response time according to the industry standards. Please refer the section 3.1 for the detailed performance test report attached.

The complexity is usually will be calculated with each final submission and mapped with complexity categorization but here it was mapped with overall all components involved to select the different control and the final submission.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Screen** | **Response time benchmark(ms)** | **Com Component Processing**  **Time(ms)** | **Total**  **Response time benchmark(ms)** | **Total**  **Response time benchmark(s)** | **Complexity** |
| **BP01\_10\_HOME-PAGE** | 86.6 | 0 | 86.6 | 0.0866 | Low |
| **BP01\_20\_USER-LOGIN** | 4,269.2 | 0 | 4269.2 | 4.2692 | Low |
| **BP01\_30\_BUILD-IT** | 19,510.2 | 3231 | 22741.2 | 22.7412 | Very High |
| **BP01\_40\_SELLING-DEALER** | 5,606.8 | 359 | 5965.8 | 5.9658 | Medium |
| **BP01\_50\_SHIPPING-DEALER** | 19,407.2 | 359 | 19766.2 | 19.7662 | Very High |
| **BP01\_60\_PURCHASE-ORDER** | 5,766.6 | 359 | 6125.6 | 6.1256 | Medium |
| **BP01\_70\_SERIES** | 6,605.8 | 359 | 6964.8 | 6.9648 | Medium |
| **BP01\_80\_MODEL** | 6,148.3 | 359 | 6507.3 | 6.5073 | Medium |
| **BP01\_90\_ACCESSORIES** | 5,808.3 | 359 | 6167.3 | 6.1673 | Medium |
| **BP01\_100\_QUANTITY** | 5,577 | 359 | 5936 | 5.936 | Medium |
| **BP01\_110\_DELIVERY-DATE** | 6,672.3 | 359 | 7031.3 | 7.0313 | High |
| **BP01\_130\_SUBMIT-ORDER** | 19,000 | 718 | 19718 | 19.718 | Very High |
| **BP01\_140\_REPEAT-CYCLE** | 18,487.8 | 718 | 19205.8 | 19.2058 | Very High |
| **BP01\_150\_LOGOUT** | 1,956 | 0 | 1956 | 1.956 | Low |
| **BP02\_10\_HOME-PAGE** | 104.3 | 0 | 104.3 | 0.1043 | Low |
| **BP02\_20\_USER-LOGIN** | 2,463.6 | 0 | 2463.6 | 2.4636 | Low |
| **BP02\_30\_SEARCH-ORDERS** | 2,870.1 | 1077 | 3947.1 | 3.9471 | Low |
| **BP02\_70\_SEARCH** | 8,944.9 | 359 | 9303.9 | 9.3039 | High |
| **BP02\_90\_SEARCH** | 9,513.4 | 359 | 9872.4 | 9.8724 | High |
| **BP02\_100\_DOWNLOAD** | 9,544.6 | 359 | 9903.6 | 9.9036 | High |
| **BP02\_110\_LOGOUT** | 1,864.6 | 0 | 1864.6 | 1.8646 | Low |
| **BP03\_10\_HOME-PAGE** | 1,032 | 0 | 1032 | 1.032 | Low |
| **BP03\_20\_USER-LOGIN** | 4,131.1 | 0 | 4131.1 | 4.1311 | Low |
| **BP03\_30\_MY-PROFILE** | 2,114.5 | 0 | 2114.5 | 2.1145 | Low |
| **BP03\_60\_SEARCH-ORDERS** | 6,021.1 | 1077 | 7098.1 | 7.0981 | High |
| **BP03\_80\_SEARCH-ORDERS** | 5,825.6 | 1077 | 6902.6 | 6.9026 | Medium |
| **BP03\_100\_SEARCH-ORDERS** | 5,652.2 | 1077 | 6729.2 | 6.7292 | Medium |

### Other Information

|  |  |
| --- | --- |
| The response time to generate each page for the application | NA |
| The benchmark provided by the application server size of each page | NA |
| The number of real time interfaces the application has with remote systems | NA |

## The Available Network Bandwidth

* What is the present network bandwidth?
* Is the application Internet based or Intranet based?

Both

* If Intranet based, how the offices are interconnected? That is what the network backbone is?

LAN

* If on Intranet, what is the available throughput of the channel?
* Is there any tool, which is being used to monitor the network throughput?

Fog light

* Is there any firewall etc... In between this inter-connection?

Firewall is present in between inter-connection.

* What are the backup criteria if the ISP goes down?

## References

|  |  |
| --- | --- |
| **Category** | **Existing** |
| IBM: Beyond Performance Testing: How fast is fast enough? | <http://www.ibm.com/developerworks/rational/library/4249.html> |
| STQE: Web Page Response 101 | http://www.webperformancematters.com/papers-and-talks/performance-management/Web%20page%20response%20time%20101%20Savoia%20STQE%202001%20.pdf |

# Availability

## Requirements Statement

Availability of the Fleet-TRAC application should be near 24 x 7. Normal usage of system is Monday thru Friday from 3AM to 6 PM. Light usage is expected on Weekends and afterhours.

There are periods of time when maintenance is done on dependent systems Mainframe, SQL Server and Salesforce system availability.

|  |  |
| --- | --- |
| **Requirement** | **Yes/No** |
| The online system must be available 24X7 | Y |
| All upstream system interfaces must be available during the above timeframes for integration purposes | Y |
| The system must have an uptime of 99.9% (9 hours of unscheduled downtime per year) | Y |
| Downtime for maintenance must be scheduled around the specific needs of the business which will be elaborated in future discussions. | Y |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| # | Application / System | Critical Timeframe | Hours of Operation | Acceptable Downtime |
| 1 | Fleet-TRAC | 3am – 6pm PST  Mon-Sun | Near 24 / 7  Normally Mon-Fri, w/ low volume weekend and afterhours access.  See data dependencies below (systems accessed by Fleet) | Align with dependent system downtimes.  Mainframe, SQL Server, Salesforce, DIS |
| 1a | Mainframe  (Fleet DB2 tables and CICS transactions to process orders) | 3am – 6pm PST  Mon-Sun | n/a | Daily Batch cycle     8 PM- 2 AM PST     Mainframe Platform Maint  10:30 PM PST Sat  Normal – 2 hr. duration  Upgrades- 6-12 hr. duration |
| 1b | SQL Server | 3am – 6pm PST; Mon-Sun | Near 24 / 7  Normally Mon-Fri, w/ low volume weekend and afterhours access.  If any patch updates then will go as for planned updates. | If any specific uplift will be planned accordingly. |
| 1c | Sales Force | 3am – 6pm PST; Mon-Sun | Usually two updates per year and will be communicated to planned outage. | Align with business operations and approval |
| 1d | DIS | 3am – 6pm PST; Mon-Sun | Available 24/7 and no downtime and the maintenance will be done on roll over fashion. The outage notification will be communicated from DIS. | Align with business operations and approval |

# Disaster Recovery

* Fleet-Trac is classified as “Critical” and hence the Disaster Recovery and Business Continuity are essential for the applications.

## DR Environment

* The production environment for Fleet-TRACT application will be in *Phoenix, AZ* data center. The DR environment is in *Torrance CA* data center.
* In the unlikely scenario of extended outage at the production datacenter due to natural disasters or otherwise, a Disaster Recovery can be initiated directing the traffic to the DR environment.
* As it is envisaged now, the DR environment will be an exact replica of the production environment and hence handling the production capacity will not be an issue in DR.

## Recovery Time objective

* Application Recovery is designed to be recoverable within 1 hour.

## Recovery Point objective

* Fleet-TRAC system will leverage Data Guard to synchronize data to DC1 (near to zero data loss).

### *Data Replication to DR Environment*

|  |  |
| --- | --- |
| **Data Item** | **Replication Requirement** |
| Transaction Data | Required |
| Operational data | Required |

## DR Environment Readiness Testing

All the hardware and software components of the DR environment must be compatible with the production environment. In addition all access related requirement like connectivity to external systems must be ensured. A DR testing must be conducted prior to Fleet-TRAC is put to production.

## Deployments to DR Environment

All regular and patch releases must make it to the DR environment before it hits the production environment. Since DR environment is the designated capacity testing environment this should normally be the case. Appropriate release management process must ensure this requirement.

# Security

The Fleet-Trac rewrite is secure application which will be leveraging TBG to TESS Security Framework for Authentication & Authorization and adheres to most of the security guidelines enforced by the EA team. Any security requirements specific to hosting will be handled by the appropriate hosting team.

Following are the key security specification of the Fleet-TRAC application

* Communication from the client browser to the web server will be over a Secure Socket Layer (SSL).
* TESS security framework will handle user authentication

The User provisioning/De provisioning will be handled through Workday by TESS for internal users.

But for external users the user provisioning will be done thorough the User management services provided by TESS through the Fleet-TRAC application.

As part of Phase I All the Fleet-TRAC users will be enrolled with default Fleet-Enrolled roles on TESS and the authorization will be take place within the FTC application.

During Phase II, All the application specific roles will be converted into Coarse grained roles which will be maintained in TESS.

The data quality analysis has to be performed to migrate the TBG to TESS specific user base for different strategies identified. (Will be documented in the Data quality analysis document).

# Understanding the Application information Asset & Interfaces.

**Note :** All the below details are mentioned for prod environment with the components involved for internal applications communications.

|  |  |  |
| --- | --- | --- |
| **Name of the Interface** | **URL** | **Method** |
| *Salesforce* | *http://www.salesforce.com/servlet/servlet.WebToCase?encoding=UTF-8* | *Http Post* |
| *Salesforce* | [*https://na1.salesforce.com/sserv/login.jsp?orgId=00D300000000OM5*](https://na1.salesforce.com/sserv/login.jsp?orgId=00D300000000OM5)*’* | *Redirect* |
| *DIS* | *To Be Updated – Collects dealer information for the given zip code and other required parameters.* | Rest Web service/Fleet |
| *Db2* | TMSHOST.TMS.TOYOTA.COM  Port : 3010 | *JDBC* |
| *Toyota.com* | [*http://trac.toyota.com/admin/tops\_dl\_prefs\_dis.asp?user=!cpdmaintenance1*](http://trac.toyota.com/admin/tops_dl_prefs_dis.asp?user=!cpdmaintenance1) | *Post - .Com calls this from Fleet-Trac* |
| *SQL Server* | "FleetSQLServer"="DBMSSOCN,ATMSPSQLCLU10A.data,8025"  "ATMSPSQLCLU10A\APSQL4A"="ATMSPSQLCLU10A\APSQL4A" | *JDBC* |

# Reporting

## Reporting Requirements

* A total of 5 reports have been identified as part of Fleet-TRAC application. Identified reports are listed below. The details are exported from the AS IS System.

**Note:** All the below reports or Web based reports generated from the application and not through the back end database.

|  |
| --- |
|  |
| Search Order – The details can be exported from the screen through an export button |
| Search Delivery– The details can be exported from the screen through an export button |
| TED Dealers Print option- Opens a printer friendly html page |
|  |
|  |
|  |

# Distributed Application and Transaction Integrity

* What is the kind of interface requirements the application is talking about i.e. is it real time, nearly real time or batch? Or in other words Synchronous or Asynchronous?

All the interface requirements are identified as synchronous and real time communication.

* Is it that the remote applications will be only used for querying and not for update and insert or is it for all type of transactions?

The remote application can perform update and insert.

* Are the applications running on standard distributed framework DCOM/RMI/CORBA/EJB over TCP/IP?

No.

* Is the distributed interaction at the database server level or at the application server level?
* Application server level.
* Is there any firewall etc. in between the servers?
* Yes, All the interfacing server the firewall has to be opened from TMS network and open the internet firewall for Salesforce. (https :443)
* What level of transaction integrity has to be maintained between the distributed applications?
* The standards transaction integrity will be maintained AS IS or will be leveraged to get better optimization during Phase II.
* Is there any third party interfaces provided or implemented which will assist in this kind of transactions? In which language or framework it is developed?
* Can the transaction be done over HTTP?
* Yes but through the HTTPS using Salesforce, DIS and COM Component communication.
* Any kind of security associated for these transactions?- TBG / TESS
* TESS
* Does the client already use some Transaction server?
* TESS server for Security and Jboss Server for Database Transactions
* How the system should behave in case of unfinished transaction or erroneous transaction? How it is recovered?

System should not update any data into the database, if the transaction is failed.

* Is the present system talking to any legacy system? If yes through what? If no is there any need for the same?

YES through the HTTP Post call to COM Components, Part of Phase II the JDBC call is being introduced with help of JPA 2 implementation to achieve the functionality.

However if any hardcoded functionality is identified where we can implement through Db2 then those parts will be replaced with Db2 interaction.

# Legal Requirements

## Requirements Statement

Following are the key legal specification of the application

|  |  |
| --- | --- |
| **key legal specification Requirement** | **Release** |
| No Legal Requirement identified. |  |
|  |  |

# Monitoring

## Requirements Statement

|  |  |
| --- | --- |
| **Requirement** | **Yes/No** |
| Application will be monitored in production only | No |
| Application should execute standard capacity monitoring. Other identified performance monitoring needs will be evaluated. | Yes |
| Application should have scheduling tools that can monitor and call-out when an interface/process has failed | Yes |
| Applications should leverage JMX for providing custom monitoring capabilities. | Yes |

The below template need to be filled during the build Phase.

### End User Monitoring

*Monitors performance of Real Users using the system (required)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **QA** | | | | |
| App Consumer (User Role/Group) | Transaction to Monitor  (Transaction with defined response expectation) | | URL | Hours of Operation, Comments:  (We will establish monitoring rules during deployment) |
| <customer name> |  | | <https:….> |  |
|  |  | |  |  |
|  |  | |  |  |
|  |  | |  |  |
|  |  | |  |  |
| **PRODUCTION** | | | | |
| App Consumer (User Role/Group) | | Transaction to Monitor  (Transaction with business defined response expectation) | URL | Hours of Operation, Maintenance Window, Comments: |
| <customer name> | |  | <https:….> |  |
|  | |  |  |  |
|  | |  |  |  |

### Synthetic Transaction Monitoring

*Monitors Performance and Availability using simulated transactions (Optional - used to verify application availability regardless of real user application usage)*

|  |  |  |  |
| --- | --- | --- | --- |
| **QA** | | | |
| App Consumer (User Role/Group) | Transaction to Monitor  (Transaction with business defined response expectation) | URL | Hours of Operation, Maintenance Window, Comments: |
| <customer name> |  | <https:….> |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **PRODUCTION** | | | |
| App Consumer (User Role/Group) | Transaction to Monitor | URL Name | Monitoring Rules, Frequency, Comments |
| <customer name> |  | <https:….> |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

### Application Component Monitoring

*[Repeat the table below one section for each portion of the application. For example if the application uses online and reporting there would be two sections below for QA and two sections for PRODUCTION.]*

|  |  |  |
| --- | --- | --- |
| **QA** | | |
| Description | Type | Product or Service Name |
| <Online, Batch, Reporting> | Web | NA |
| Application/Middleware | JBOSS Server |
| Database | SQL Server, DB2 |
| Consuming Services | SalesForce |
| COTS Packages |  |
| Other ? | DIS |
| **PRODUCTION** | | |
| Description | Type | Name |
| <Online, Batch, Reporting> | Web | NA |
| Application | JBOSS Server |
| Database | SQL Server, DB2 |
| Consuming Services | Sales Force |
| COTS Packages |  |
| Other ? | DIS |

## Monitoring Out of Scope

*Identify any items that may have assumed to be in-scope for monitoring.*

|  |
| --- |
| **Out-of-Scope** |
| 1. Incorporation of existing COM scripts. |
| 1. Enterprise service does not have the Monitoring for the Integration Component that connects the JEE to COM layer. |

## Monitoring Assumptions, Constraints and Dependencies

|  |
| --- |
| **Assumptions** |
| Application team will provide the necessary support during implementation and verification |
| Application specific dashboards – ES will assist the application teams in the initial development; App team to maintain and modify thereafter |
| Application team to assign a SPOC for coordination during implementation |
| Application team will be responsible for maintaining the integrity of their application monitoring setup post implementation |
|  |
| **Constraints** |
| QA & Prod instrumentation to be aligned with QA & PROD application release schedule (*List dates)* |
|  |
| **Dependencies** |
|  |
|  |

# Data View

## Data Conversion

No Application Functional Specific Data conversion is required however the data conversion is required to convert existing user base from TBG to TESS.

The Data quality analysis will be performed to capture the new fields or data to be captured part of TBG and TESS migration.

## Data Retention Requirements

Fleet-TRAC will adhere to data retention 3 Years of data.

## Logical Data Model Requirements

Fleet-TRAC will require a minimal change to the existing data model due to TESS standards and guidelines if any.

If any changes are identified during SAD or elaboration phase the below guidelines will be adhered that were derived from the Data Design document Standards and Guidelines.

|  |  |
| --- | --- |
| **Category** | **Requirement** |
| Compliance | Entities and attributes appropriately describe business |
| Compliance | Business terms are used to describe the data model. |
| Compliance | Definitions accurately reflect the business usage |
| Compliance | LDM is compliant with the Logical Data Modeling Standards and Guidelines latest version. |
| Compliance | Entity and attribute names comply with naming standard |
| Compliance | LDM is documented in approved standard modeling tool |
| Compliance | The LDM fully implements the business data attributes and business relationships |
| Compliance | Each variance from the standards must be documented, reviewed, and approved |
| Compliance | LDM must use known subject area patterns (e.g. Vehicle and dealer hierarchy) |
| Correctness | Each data entity represents in only one concept |
| Correctness | A natural key uniquely identifying each business entity is defined |
| Correctness | All relationships supported by Foreign Keys |
| Correctness | Transitive relationships are resolved |
| Correctness | All data requirements are supported |
| Completeness | Requirements from all stakeholders were incorporated into the models |
| Completeness | Every entity and attribute is defined |
| Completeness | Definitions must identify allowed values, if this is a constraint |
| Completeness | Definitions must define default values |

## Physical Data Model Requirements

If any changes to existing data model are identified during SAD or elaboration phase the below guidelines will be adhered that were derived from the Data Design document Standards and Guidelines.

|  |  |
| --- | --- |
| **Category** | **Requirement** |
| Compliance | PDM is compliant with the Database Administration Standards and Procedures latest version. |
| Compliance | Table and column names comply with naming standard |
| Compliance | PDM is documented in approved standard modeling tool |
| Compliance | Physical database meets operational requirements as elaborated in function use cases. |
| Compliance | All required Logical and Physical database objects are fully defined. Schemas, Table Spaces, Indexes, Users, etc |
| Compliance | Volumetric |
| Compliance | Partitioning |
| Compliance | Load sequences and dependencies |
| Correctness | Tables containing business data are traceable to LDM |
| Correctness | All “business” data elements in the PDM are traceable to the LDM. This does NOT include any derived, calculated, or system generated data |
| Correctness | The PDM contains properly defined primary keys and/or alternate keys where applicable according to the LDM. Surrogate keys may have been applied for performance reasons |
| Correctness | The PDM contains foreign keys in the appropriate tables to represent relationships on the LDM |
| Completeness | All PDM physical metadata is complete. This includes information such as data types, lengths, optionality, constraints, and default values. Definitions have been created for tables and columns that do not exist in the LDM |
| Correctness | PDM meets the project requirements |

## No. of Concurrent Database transaction for FTC

* **What is the number of simultaneous database transaction?**

Number of simultaneous database transaction will be equal to the total number of users accessing the application.

* **What are the peak load and the minimum load?**

Minimum Load: 1

Peak Load: Depends on the number of users logged into the system.

* **What is the Record Locking strategy?**

Record Level Lock in all the tables involved

# Message Handling

## Errors/ Warning/ Information/ Notifications

* **Does the applications need that the errors be displayed as message boxes or should it be re-directed to an error page or is it required to refresh the same page with an error message at the top?**

The current Fleet-TRAC system is the following methods:

1. Errors displayed with refresh of same error page.
2. The Critical exception will be mailed using the key users and support maintenance person.

* **What should be the text of the errors trapped is it to be customized always or the system messages have to be displayed in special cases?**

The errors will be customized at all instances. Only when an unhandled exception comes up, the application error will be displayed to the users.

* **Does some kind of logging have to be there for the administrators to monitor the system?**

Yes. Log back logging will be used to log the error messages.

* **How to display the information? Is it required as a pop-up as the mouse navigates over it / Is it, that it should appear in the bottom in the application task bar/ Is it required as an hyperlink or any click able item which displays some popup or redirect to some screen?**

Errors/Warnings/Information will be displayed as a pop up in the application.

* **What kind of notification system the client is looking at?**

The clients want to retain the same notification system through mail communication. Any deployment, System maintenance notifications goes only to TMS Fleet Business and business will notify customers on case by case basis. Lead time for scheduled maintenance notification is 10 Business days.

* **Do they want any kind of notification to be sent to the user before the system is shut down for maintenance etc.?**

Yes. A deployment outage notification will be sent to the users

# System administration

* How does the client plan to tackle the administration of the system? What are the functionalities / privileges that the client wants to be handled by the system administrator?
* Is this an altogether different module, if so is it intranet based or internet based?
* How the System admin is integrated with other parts of the system?
* Who maintains the list of system administrators and how it is maintained?
* Does the Administration need any kind of monitoring tool (both for the Web-App tier and the Database)?

# Configuration

* Is client looking for any configuration parameters that are customizable to suit the environment of production such as url prefix etc
* Is client looking for runtime configuration change effect in behavior of the application?

# Toyota Reference Architecture

Fleet-TRAC solution architecture should adhere to TMS application framework.

## Requirements Statement – J2EE Requirements

Below is the full list of J2EE requirements. The ratings in the table below correspond to the ratings set forth in the Toyota Reference Architecture. They are: M (Mandatory), R (Recommended), and O (Optional).

|  |  |  |
| --- | --- | --- |
| **Category** | **Rating** | **Description** |
| General Policies | M | The reference technological environment is the standard J2EE environment. |
| General Policies | M | The application must ensure that all data and databases are in a consistent state at all times. |
| General Policies | M | A tiered architecture must be used, with separation between presentation, application, business, integration and resource logic. |
| General Policies | M | Business functionality delivered by an application must be accessible as a service representing a single point of access to its data. |
| General Policies | M | All business logic must be contained in modules or components that have no dependencies on any presentation logic. |
| General Policies | R | Industry standards should be used instead of internal standards, where available. |
| General Policies | M | Message queuing must be used for reliable, asynchronous communication between components in a distributed environment. |
| General Policies | R | In case of a crash the system should be able to automatically recover to the maximum possible extent. |
| General Policies | M | J2EE Standard packaging specification must be used |
| General Policies | M | UML must be used as the modeling language. |
| User Interface | R | The user interface must be optimized to run in 1024\*768 (XGA) display resolution. |
| User Interface | M | All client-side scripting must be done in JavaScript. |
| User Interface | M | Appropriate standard use of Cascading Style Sheets is mandatory. |
| User Interface | M | Client-side components (applet, ActiveX) must not be used. |
| User Interface | O | Client-side scripting may be used for simple user input validation (formatting etc.) but not for semantic validation |
| User Interface | M | The user interface must at least be available in English. Support for other languages may be (and often is) a requirement. |
| User Interface | M | The common screen displayed when an exception is raised must only contain information that's relevant to the end user. |
| User Interface | M | Detailed information on technical errors must never be disclosed to end users. |
| User Interface | M | Localization (date formats, decimal separators, currencies, etc.), if applicable, must be handled by the application. |
| User Interface | M | User Interfaces must be provided by JSP or HTML pages |
| Presentation Tier | M | The presentation layer must be implemented using Spring MVC architecture. |
| Presentation Tier | M | All input must be validated by the presentation layer (even if already validated in the user interface by scripting) |
| Presentation Tier | M | Presentation logic must not contain any business logic, and in particular no instructions to access a database. |
| App & Business Tier | M | Business logic must be implemented using POJOs, Java Beans or Enterprise Java beans. |
| App & Business Tier | M | Role-based fine grained data sensitive authorization must be handled by the TBG framework. |
| App & Business Tier | M | MQ series must be used for message queuing |
| Product/Technology | R | Application server for J2EE applications must be BEA Weblogic App Server |
| Product/Technology | R | Spring web services framework should be used to implement web services. |

# Java Coding Standards

As a Java Application Fleet-TRAC must adhere to the TMS Java Coding Standards. See attached document.



# Sunset VB/COM Componenets.

AS-IS Application build on ASP VB components will be sun set at end of J2EE based after the complete Phase2 application delivery.

# Access for Handheld device users (For future Enhancement purpose)

* Is the application to be used by handheld device Users?

Yes. UI will be scalable to extend the support for all the handheld devices.

* If so what kind of data they are looking for to be viewed through a PDA or other handheld device?

Entire application

* Does the application needs only a small part of the interface to be displayed in the PDA screens?

No. Entire application

* Are Graphics required for display in the PDA or other mobile devices? (Currently it's not supported by WAP on GSM-Circuit Switched Network)

No

* Are the mobile users confined to the office space or spread across a wide range? i.e. are the mobile users connected through WLAN (IEEE 802.11/11b) or is it through GSM?

No mobile users.

* Are the PDA users using any standard browser or micro-browsers?

Standard Browsers.

# Appendix A

## User Logins per Day

The following metrics have been derived based on the analysis from production log files extracted as of 03-19-2015

|  |  |
| --- | --- |
| **User Volumetric** (Date) | |
| **Category** | **User Count** |
| Total # of Logins per day |  |
| * **derives to 100% of defined users 3307** | |
| Total # of Logins per hr (15:00:00 to 16:00:00) | ~ |
| # of users accessing the FTC application on avg per day | ~ |
| * **derives to 20% of Active users 482** | |

## References

Need to upload the IIS server logs for the evidence of existing transactions.

Due to huge size of the log file, the file is placed on the shared path.

[\\ctmspnas01\scratch\Sethuraman](file:///\\ctmspnas01\scratch\Sethuraman) IIS Logs

Note: This reference folder will be replaced later.