The *Independent* Solution Provider for Industrial and Process Automation & IT

ATS Projects

Budgetary estimate

of ATS Applied Tech Systems B.V. for

Apollo Tyres Pvt Ltd

for:

RD&L SPEC and LIMS Apollo Global Scenario 2-

Work Package 4.2.2

Revision 1

Table of Contents

1 Distribution & Revision

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REVISION LIST

Revision	Date	Comments
1.0	25-01-2021	First version

DOCUMENTS

This proposal is based on follow document(s):

Document

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2 Introduction

Currently the factory of Apollo in India does not have a specification system in place. The wish of Apollo Global is to implement a capable specification system in Global.

Several scenarios have been documented. Within this scenario is that Apollo Global will implement a new specification application of Siemens Opcenter RD&L, based on configuration of the environment in Enschede. From the new platform the different sites can login to these servers. Opcenter RDL supports the option to use amazon webserver, which makes it possible to work in the cloud.

Great advantage of this scenario is the capability to expand this solution to other sites, factories and functionality. Opcenter RD&L is an application build with the newest knowledge and technologies.

Apollo Global have currently plants in three countries; Netherlands, Hungary and India. The wish of Apollo is to migrate to a platform that contains all plants. Current applications are used:

- Netherlands;
  - Unilab 6.7
  - Interspec 6.7
- Hungary;
  - RndSuite 7.x
  - Interspec (application of the Netherlands)
  - Unilab (application of the Netherlands)
- India.
  - None

The strategy is to begin with an design investigation. When all parties agree on the design, the environment from Apollo Enschede will be copied into the Opcenter RD&L servers. The new platform, with the configuration from Enschede, will be migrated to the new Opcenter RD&L version after which it will be built as agreed in the design phase.

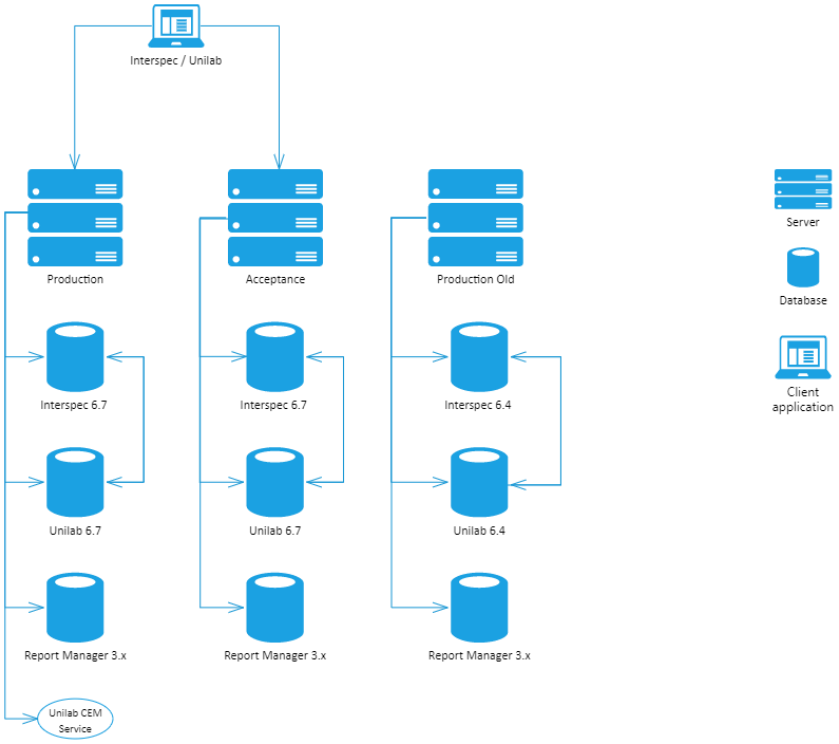
Within this project the specification module (Interspec – part) and the laboratory module (Unilab – part) will be build, configured and tested. Because Interspec and Unilab are communicating with SAP and Hungary, it's not possible to deliver a part of the new platform. The production data will be migrated once from Enschede into the new servers. All modules and plants must be go live at the same moment. Apollo India is an exception. Because they don't have a LIMS yet, they could go-live at a later moment.

Within this document you will find the proposal for the implementation of Opcenter RD&L in Apollo Global. The proposal is not based on a specific statement of requirements; these are gathered by ATS through meetings and visits. There is a risk that not all requirements are known and included in this proposal. The process and cooperation during the project are setup to cover these risks by four stages of tests:

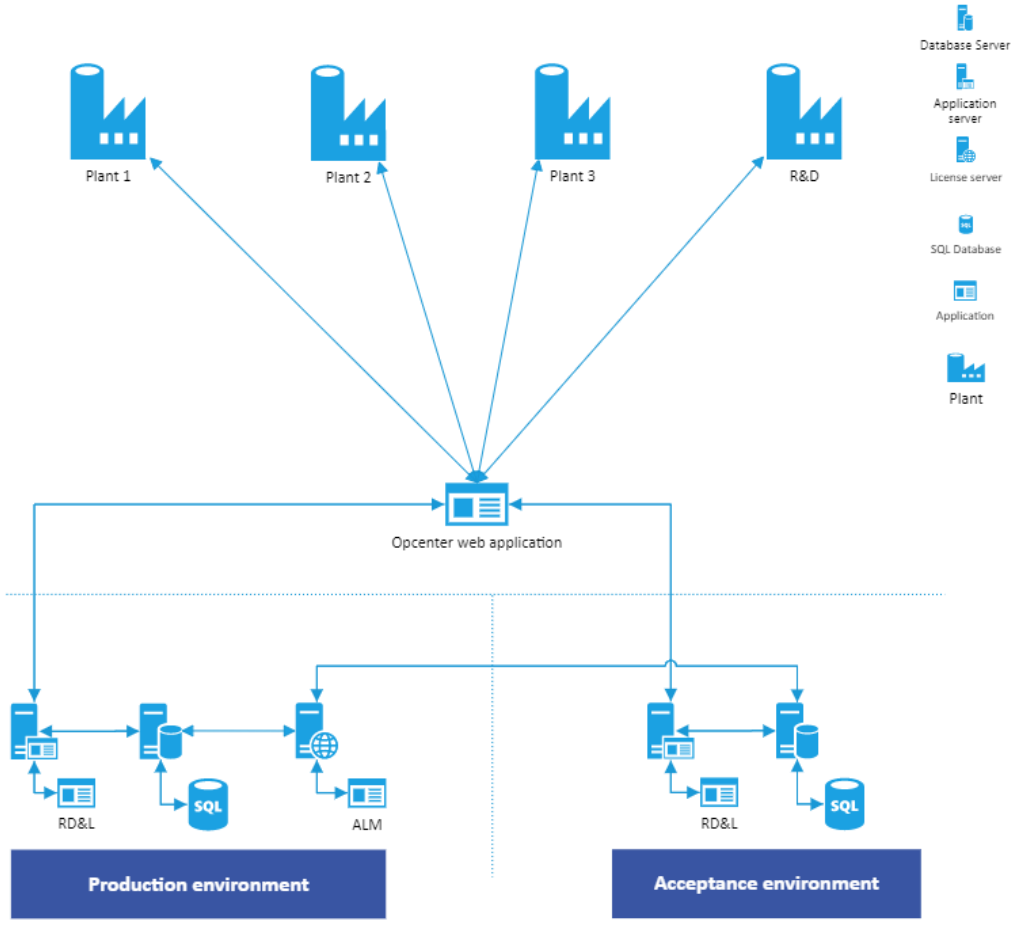
1) Unit testing (only applicable to add-on software where unit tests are included);
2) Integration Testing;
3) Functional Acceptance Testing;
4) Quick User acceptance tests at Go-live.

A fall-back strategy is included in the process.

Current applications and servers in Enschede:



Opcenter infrastructure DP (Development / Production:



Activity:

- Create a functional design of the workflows of the global sites, based on Opcenter RD&L;
  - Analyse the current architecture of Enschede and Hungary;
  - Propose a design, based on current architecture and new requirements.
- Preparation/installation;
  - Check prerequisites;
  - Prepare migration tool;
  - Install database;
  - Install Opcenter RD&L;
  - Install licence manager.
- Build a completely new environment, based on configuration from Enschede;
  - With AP (Acceptation Production) environment;
  - Running on MSSQL database;
  - Upgrade customisations;
  - Build instrument connections;
  - Build interface with ERP.
- Build configuration: depend of complexity of configuration;
  - Build frames, according to configuration of Enschede;
  - Build attributes;
  - Build info field/cards;
  - Build properties;
  - Build sections.
- Migrate the data from Enschede;
- Test and defect solving;
- Other;
  - Key user training;
  - Upgrade installation and system documentation
  - Training and knowledge transfer to support team ATS
  - Participate in the execution of the FAT and SAT.

Benefits:

- RD&L has a higher performance rate;
- RD&L runs locally, which take away the risk of downtime when the master server is down;
- RD&L is a long term solution which can be expand with other sites;
- RD&L is the latest platform with the newest technology;
- Future proof;
- Fully integrated platform for Specification and LIMS management;
- Compatible with Opcenter MES.

- Concerns: Location of the servers (in case when physical servers are used) determine the connection speed.

Prerequisites:

- Full Access (rights) to servers/DB and applications;
- A dedicated team with knowledge of the Interspec environment in Enschede and production workflows of all sites;
- For this DP system, at least 5 servers are recommended. One for de DB and one for the application per DP environment. All servers below will be divided on these two servers;
- Documentation of current configuration and customisations.

- **Database server:**

RDBMS Server

Component	Prerequisites
Operating System	Windows Server 2016 Windows Server 2019
RDBMS	**Database server prerequisites:** SQL Server 2014 64bit SQL Server 2016 64bit SQL Server 2017 64bit **Database setup prerequisites:** For SQL Server 2014 64bit:* Windows PowerShell Extensions for SQL Server 2014 ** Microsoft SQL Server 2014 Management Objects ** Microsoft System CLR Types for SQL Server 2014 ** For SQL Server 2016 64bit:* Windows PowerShell Extensions for SQL Server 2016 *** Microsoft SQL Server 2016 Management Objects *** Microsoft System CLR Types for SQL Server 2016 *** For SQL Server 2017 64bit:* SQL Server PowerShell module **** **Important** Before installation, see remark (1).

- **Web Server:**

Component	Prerequisites
Operating System	Windows Server 2016 Windows Server 2019
Web Server	IIS (version 8.5 or higher) Microsoft Web Deploy 3.6 *
.NET	Microsoft .NET Framework 4.7.2

- **Licence server:**

Component	Prerequisites
Operating System	Windows Server 2016 Windows Server 2019
.NET	Microsoft .NET Framework 4.7.2

- **Desktop Web Client**

Component	Prerequisites
Operating System	Windows 7 Windows 10
Web Browser (2)	Tested with Chrome (version 73) – recommended browser Tested with Edge (EdgeHTML v17)

Hardware prerequisites:

RDBMS Server

Component	Prerequisites
Memory	Minimum: 16 GB
Processor speed	Quad Core Processor of 2.80 GHz or more
Disk space	Demo environment: 40 GB Recommended: 120 GB or more Note: • For Enterprise-wide implementations the usage of SSDs is recommended.
Network adapter	Recommended: 1 Gb/sec or higher

Note

To estimate the required disk space for your database, use the *EstimateDbSize.xlsm* spreadsheet available in the *\tools\Estimate DB Size* folder. Detailed instructions are available in the *Introduction* tab of the spreadsheet.

Web Server

Component	Prerequisites
Memory	Minimum: 8 GB Recommended: 12 GB or more
Processor speed	Quad Core Processor of 2.80 GHz or more
Disk space	8 GB or more
Network adapter	Recommended: 1 Gb/sec or higher

Desktop Web Client

Component	Prerequisites
Memory	Minimum: 8 GB or more
Processor speed	Dual Core Processor or more
Disk space	Disk space usage is limited

Network Prerequisites:

Connectivity between Web Clients and Web Servers

Property	Prerequisites
Download speed	Minimum: 2 Mbits/sec Recommended: 10 Mbits/sec or higher
Upload speed	Minimum: 2 Mbits/sec Recommended: 10 Mbits/sec or higher
Latency	Maximum: 50 ms Recommended: 10 ms or less

Connectivity between Web Servers and Database Servers

Property	Prerequisites
Download speed	Minimum: 100 Mbits/sec
Upload speed	Minimum: 100 Mbits/sec
Latency	Maximum: 10 ms

Note

Servers must be connected using a network switch of at least 1 Gbit/sec.

3 Assumptions

- Configuration and functionalities for this proposal are the same as currently in Interspec 6.7 and Unilab 6.7 applications in Enschede.
- All servers are compliant to the prerequisites as described in https://support.industrysoftware.automation.siemens.com/docs/mes/interspec/manuals/6.7_oracle/Installation/Prerequisites_Oracle.pdf . A short summary is described in chapter 2.
- Configuration of plants, sample types, parameters, users etc. will be done by Apollo, with assistance of ATS.
- Test scenarios for the FAT and SAT will be delivered and executed by Apollo. ATS will participate the test scenarios.

4 Deliverables

The Scope of Work/Scope Analysis is a summary based on available documentation, meetings and visits during the request stage from Apollo. The scope of the project is divided into five stages. The identified Scope of Work/Scope Analysis is summarized in following table for over viewing purposes.

Scope of Work / Analysis - Requirements
Analyse / design
➢ Analyse the current architecture of Enschede, including the ERP connection; ➢ Analyse the current architecture of Hungary, including the ERP connection; ➢ Analyse the requirements; ➢ Analyse current customisations; ➢ Propose a design, based on current architecture and new requirements.
Preparation / installation
➢ Check prerequisites; ➢ Prepare migration tool; ➢ Install database; ➢ Install Opcenter RDL; ➢ Install licence manager;
Build
➢ Upgrade customisations from Enschede; ➢ Build Life Cycles and workflows; ➢ Configure user groups and functional access rights; ➢ Rebuild customisation from Interspec and Unilab 6.7 into RD&L; ➢ Build instrument connections (max 60); ➢ Build ERP connection.
Test and defect solving
➢ Defect solving for issues stemming from this specific project; ➢ Migrate the builds to production.
Others
➢ Key-User Training with demo scenario's (max 9 pers.); ➢ Upgrade Installation and system documentation; ➢ Training and knowledge transfer to support team ATS; ➢ Participate in the execution of the FAT and SAT.

In following table, you can find the prerequisites and out of scope not included in this proposal:

Prerequisites / out of scope
Prerequisites
➢ ATS needs full access to work environments; ➢ Apollo provide documentation about architecture of all configuration and interfaces; ➢ Apollo provide a dedicated team with knowledge of the Interspec environment of Enschede and production workflows of the sites in India; ➢ Clients must be compatible with product requirements in https://support.industrysoftware.automation.siemens.com/docs/mes/interspec/manuals/6.7_oracle/Installation/Prerequisites_Oracle.pdf.

5 Estimated schedule

Realisation of this Work Package will be planned between ATS and Apollo after receiving the order for this Work Package. See chapter 7 for a high over planning.

- The workload for this Work Package will be 391 days.

6 Budgetary estimate

This project is offered based on Fixed-price. Based on the deliverables, the investment for this Work Package is shown in this chapter, as following:

Deliverable		Days	Price (Euro)
Phase 1			
➢ Analyse / design		71	€ 86.516,00
➢ Preparation / installation		5	€ 4.880,00
➢ Build		220	€ 214.720,00
➢ Test and defect solving		42	€ 40.992,00
➢ Other		20	€ 19.520,00
	Total	**358**	**€ 366.628,00**
Licences	**#**	**Yearly SMA**	**Price (Euro)**
➢ Opcenter RD&L – Foundation: SIT:11000	1	€ 3.191,40	€ 15.954,00
➢ Opcenter RD&L – Foundation: SIT:11000 QA/Test	1	€ 797,85	€ 3.988,50
➢ Opcenter RD&L Specification SIT:11162	1	€ 5.550,00	€ 27.750,00
➢ Opcenter RD&L Specification SIT:11162 QA/Test	1	€ 1.387,50	€ 6.937,50
➢ Opcenter RD&L- Specification CC SIT:11206	75	€ 774,60	€ 3.872,40
➢ Opcenter RD&L- Specification CC SIT:11206 QA/Test	10	€ 193,65	€ 968,10
➢ Opcenter RD&L- Laboratory SIT:11002	1	€ 3.191,40	€ 15.954,00
➢ Opcenter RD&L- Laboratory SIT:11002 QA/Test	1	€ 797,85	€ 3.988,50
➢ Opcenter RD&L – Laboratory CC SIT:11004	75	€ 798,00	€ 3.990,00
➢ Opcenter RD&L – Laboratory CC SIT:11004 QA/Test	10	€ 199,50	€ 997,50
➢ Opcenter RD&L – Equipment Management SIT: 11126	1	€ 1.595,40	€ 7.980,00
➢ Opcenter RD&L – Equipment Management SIT: 11126 QA/Test	1	€ 398,85	€ 1.995,00
➢ Opcenter RD&L – Glossary Sync Module SIT: 11132	1	€ 1.595,40	€ 7.980,00
Total	**179**	**€ 20.471,40**	**€ 102.355,50**
Project management			
➢ Project management		33	€ 34.848,00
Total		**391**	**€ 401.476,00**

7 Payment terms:

Within the pictures below, you can find the high over planning. This planning contains the payment moments and costs.

The costs are divided in three stages per phase:

- 50% after receiving Purchase Order;
- 40% at start FAT;
- 10% after Go-Live.