



### Situation

Zuari Industries Limited has a big fertilizer plant in Goa which spans few kilometers in area. The plant has huge turn-over of raw materials required for building the fertilizer and shipping back the fertilizers to various states and cities. Intern, there is huge vehicle turn-over too. Goa government had put a mandate on all the plants to have minimum security/contingency measures in place in case of emergency in the plant. It is most important to know exact statistics of vehicles and inventory of all the materials to plan for evacuation in case of emergency.

Zuari approached ICA and Aftek to build a solution which would track the material, end products as well as vehicles.

### Expected Feature Set

- Automatic identification of vehicles using weather-resistant, reliable and long-lasting RFID tags
- Automatic recording of entry and exit time for all vehicles
- Automatic recording of weights and printing of slip at weighbridges
- Alarm annunciation for over/under weight and overstay of vehicles
- Lightning-fast response time of less than 3 seconds to all events
- Dual, redundant servers for failsafe operation with near-instantaneous switchover (less than 2 seconds)
- Data exchange facilities with other EDP systems
- Ability to handle large amount of transactions with capacity limited only by physical disk-space

### Solution

ICA and Aftek jointly conceptualized RFID based solution which had web-based GUI. Close coordination with Zuari staff was done. Aftek provided fully fault-tolerant and 24x7 system to cater to the need.

Zuari had EDP System which kept information about material and end products. This solution had Web Service based integration done with EDP System for further analysis.

Aftek executed the project with distinct phases with reviews from Zuari at necessary phases. Aftek deployed skilled personnel on-site for requirement gathering and analysis. PPT based screen layouts and flow was communicated for Zuari personnel to visualize the solution. Exhaustive architecture and detail design phase was carried out to come up with fully fault-tolerant system. Alpha and Beta testing (also called Factory Acceptance Test) was carried out before taking solution to production.

ICA provided value addition in layout of hardware like – RFID readers, signal posts etc. Interfacing was done at Programmable Logic Controller (PLC) level.

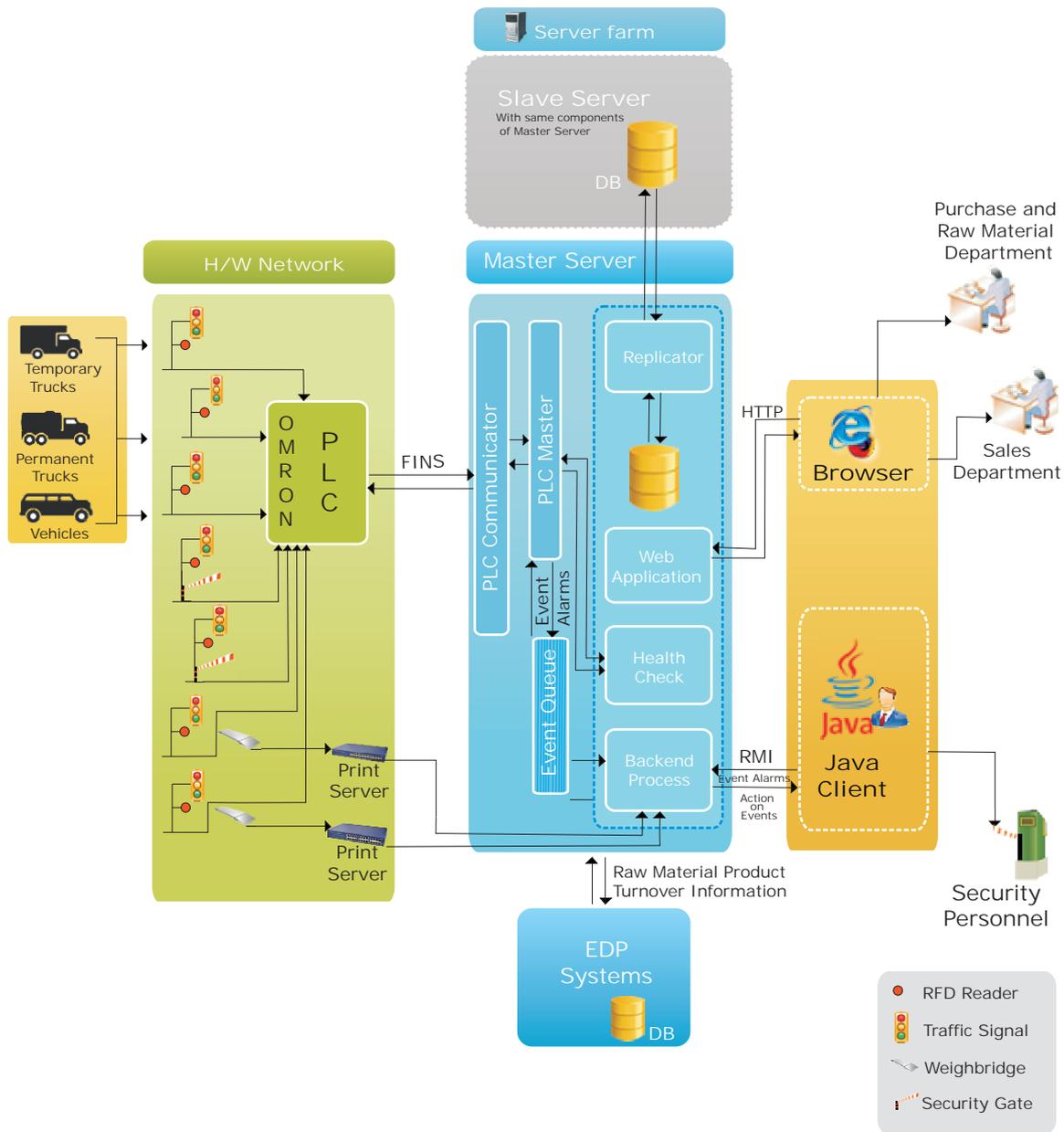
### Benefits to the client

- Open source technologies and Linux based solution saved deployment costs drastically.
- Zero pilferage by providing complete transparency of turn-over data in real-time.
- Online statistics of any vehicle and material in the plant.
- Hardware and EDP System integration zeroed down possibility of all manual errors in recording of information.

### Aftek's value-add

- Conceptualized the complete software solution for Zuari
- Performance, Scalability and Reliability (PSR) ensured robust and scalable system
- Demonstrated seamless team integration across companies to deliver integrated solution
- Software simulators were developed to eliminate hardware dependency during development stage.

Architectural Overview



Technology

- RFID Tag
- J2EE (JSP, Servlet)
- OMRON FINS
- XML
- Web Service
- Oracle
- Postgres (PL/SQL)