CASE STUDY

A Large Combined Cycle Plant in the Middle East Improves its Operating Efficiency.

Background

In 2012, a power plant in the Middle East began commercial operations of Phase Two of its largest combined cycle plant in time to meet its peak electricity demands during the hot summer months. The power plant produced more than 2,000 Megawatts (MW) of additional electricity for the grid.

In June 2012, the plant's first phase started up with six of its 9FA gas turbines operating in simple cycle mode to add nearly 1,400 MW to the grid. The second phase upgrade boosted the plant's output to more than 2,000 MW, increasing the power generating capacity by nearly 20%. The combined-cycle conversion enabled the plant to increase its output without any increase in fuel consumption thereby boosting its operating efficiency.

Business Challenge

The operating efficiency of the plant depended mainly on the critical information available from the assets spread across multiple locations. The data, which was collated through a central SCADA system, provided a plethora of raw data on the status of the assets in these distributed locations but such data had to be filtered and abstracted for extracting meaningful information to the decision makers.

The objective of using Enterprise Gateway (EG), which is an intelligent real time tool for integrating Plant to Enterprise Asset Management Systems (EAM), was to alleviate the problem of understanding the operating and maintenance efficiency of the assets from the large data streams, and subsequently trigger real time maintenance functions proactively.

Solution

As an intelligent real time Plant-to-Enterprise integration solution that allowed users to configure their own proactive rules, EG was able to filter and abstract useful intelligence from the large volume of data and was able to proactively generate useful actions to prevent downtime.

EG's implementation at the utility (illustrated in Figure 1 on page 2) included the following:

Integrating SCADA Points to EG

As a start, EG linked points in the SCADA system to the EG Databases. Therefore, EG was able to 'listen' to real time data from site SCADA/Historians.

Synchronizing EAM Locations and Assets to EG

EG linked two EAM software locations and asset hierarchies from two different EAM Instances (servers) to a single instance of EG. It also internally maintained an identical Asset-Location hierarchy in both EAM instances, and handled the translations from the plant hierarchy and the EAM representation using a Reference Mapping tool.

Creating Rules to send Production/Meter Readings to EAM

EG functioned as the integrator to send meter readings for running hours, alarm, events, and start and stop times to EAM instances for each location. This eliminated manual entry of meter readings for assets in the EAM. EG was also able to proactively detect potential problems and generate actions.

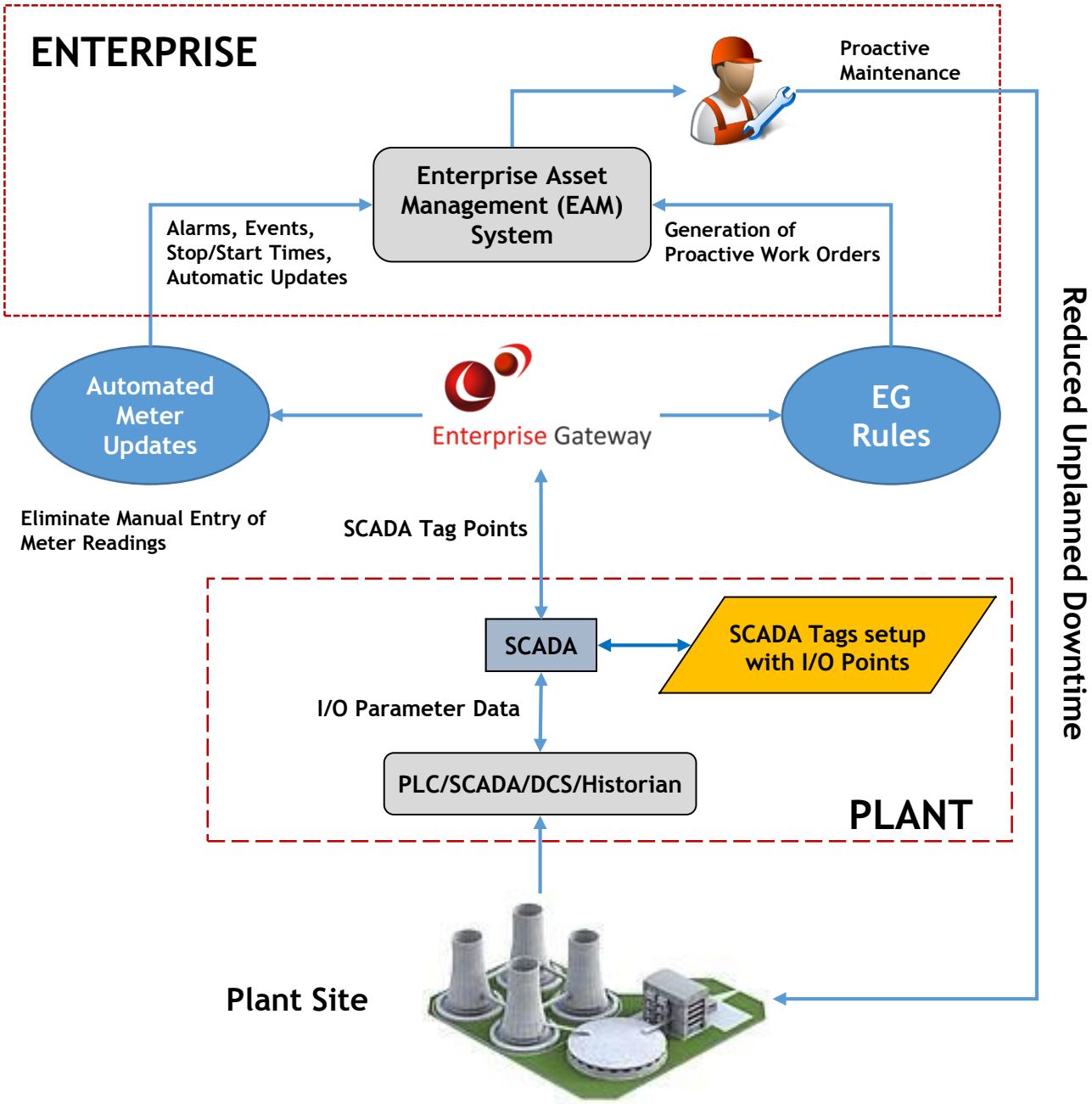

Figure 1: EG's Implementation Architecture at the Power Plant

---

5G AUTOMATIKA

Rockwell Automation Encompass Product Partner Americas

Canada

203 Colonnade Road,
Suite 202,
Ottawa, Ontario, K2E 7K3.

T: +1-613-368-4809

Mexico

Ibsen 116, Polanco,
11550 México, D.F.

T: +52-1-55-1849-7117

www.5gautomatika.com | info@5gautomatika.com