CAREER EPISODE 3

INTRODUCTION:

Time duration	June, 2016 to December, 2016
Location	
Organization	Accenture
Project	STP Upgradation
Position	Team Lead

CE 3.1

My third episode is about my job in Accenture, and during this time I did Project for Vodafone UK. Vodafone UK has more than 18 million subscribers and is the third largest Mobile operator in UK and Globally Vodafone group is the second largest mobile company. Vodafone UK had also acquired CWW and has entered in Fixed Line domain provide customer with Broadband and IPTV services through cable.

BACKGROUND:

CE 3.2

I worked on this project as Team Lead and was responsible for all the activities related to NSS/Core Network. I was responsible for creation of technical specification documents like HLD, LLD, test scenarios and deployment of solution patches on nodes. As team Lead I was responsible to give Technical training to teams and provide solution for the all technical issues. I had to ensure and resolve all the issues faced by vendor during testing or deployment of core nodes. Every day I collected Progress reports from site engineers, NOC engineers, QA and vendors and the issues were discussed in daily meeting. A detailed summary was prepared and sent to my Project Manager for review.

Other than that my daily task was to ensure and close all the issues raised by MS team within timeline, and for this I did daily meeting with my team and presented them with solution and timelines for implementation.

This Particular episode is about a STP Upgradation Project, which I did for Vodafone UK, because capacities of existing STP were not enough for future and need to be increased.

CE 3.3

I was directly reporting to Project Manager and under my supervision was a team on NOC engineers, QA/QC engineers and site engineers. NOC engineers were divided into shift to provide round the clock operation services. Whereas site engineer were mobilized according to requirement were either expansion/upgradation or addition of network elements was required. The same goes to QA/QC engineers as their job was to do spot check on sites in where nodes are being added or dismantled.

Approval for all the activity was provided by me and for this it was necessary to mention complete configuration plan along with rollback scenario. Every day I did meeting with vendor and discuss implementation plan and various test scenarios. Issues created by vendor were also informed to them and rectification plan was discussed and finalized.

On Monthly, basics arranged in house training for teams in order to groom them technically and to utilize the capabilities in maximum. Technical interviews were conducted with team in order to check their capabilities.

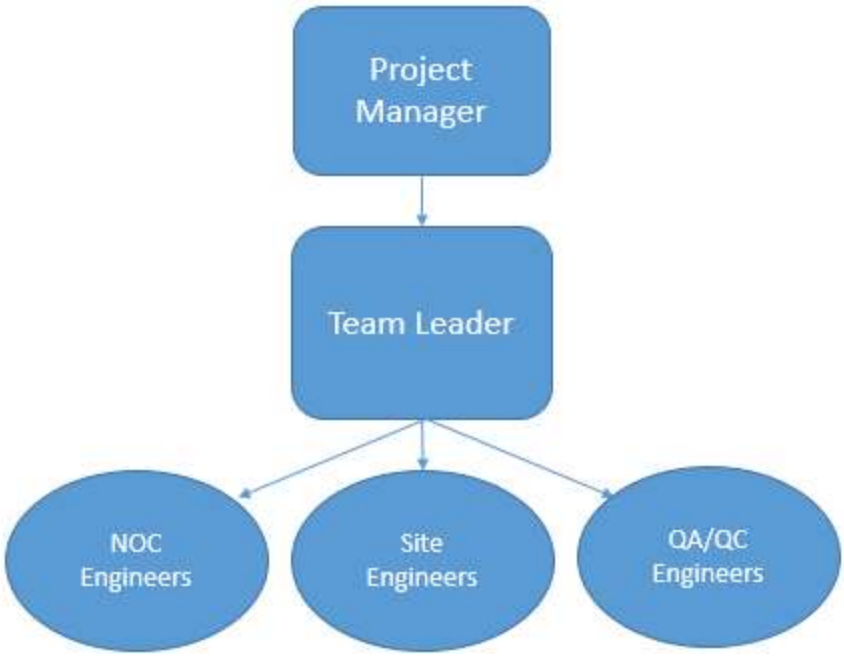
I had to ensure that team close all the operation and maintenance issued raised by MS team. And for this I had to certify Network safety so that their will be no outages.

In order to achieve desired network KPI's I had to ensure strict compliance and no outage was expected because the redundant nodes were being deployed and in case of outages there will be no backup and there will be complete failure in network.

In case of Network expansion or implementation of new nodes I had to take approval from my manager and present him with current network scenario and business needs, after which approval was granted.

CE 3.4

The project Hierarchy is given below. I was answerable to the Project Manager,



CE 3.5

Core network is the backbone of any GSM network and every operator is ensuring the redundancy and Nodes health. One-minute outage on core can affect millions of user at same time. So Network Safety is Number one priority at Core Operations.

I check daily and weekly progress of all team and gave them new task according to their capabilities. Complete Network health check and network performance was monitored on weekly basics.

A separate report was prepared by me containing all the data related to possible outages and how to avoid them along with implementation plan was discussed with team the same was discussed with vendor

PERSONAL ENGINEERING ACTIVITY

CE 3.6

As Vodafone UK is the third largest mobile operator in country and due to this Network is being expanded continuously. In my weekly meeting with my manager I raised an alarm on STP capacity and offered a solution to deploy three more STP in core network to cater future Business Needs. After detailed discussion with Vendors, business and Finance department it was

agreed to add three STPs in network. STP is very critical part Network as it provides signaling and routing information to MSC and HLR basically STP provides information of MSC and HLR for all the Mobile number who had been Port IN, Port OUT or Cross Port. STP have to be implemented in MESH topology and it should also be connected to other mobile operator STPs so that it can update Mobile user accordingly and provide correct routing and signaling information of calls.

CE 3.7

For implementation of STP in core network, I started compiling data of existing network, which includes the collection of database from existing nodes. Then high level diagram (HLD) and low level diagrams were prepared and presented to Project manager for review and approval.

After finalization of STP implementation plan, Equipment was delivered to six core locations across UK for installation. STPs are deployed in active and standby mode. To deploy three STP in network it means that total of six STP will be deployed, as these are deployed in pairs. For this I mobilized site engineer to site for hardware installation monitoring according to standards. Daily progress report was checked by myself which was sent by on site engineers and instruction were given if any abnormity was found. Before energizing the equipment earth bar resistance was checked and equipment was connected to earth bar whose values were below 3ohms. After energizing the STP were connected to IP network using Gigabit Ethernet and for these optical cords were used.

CE 3.8

After hardware installation were completed QC engineer were deployed to check Hardware quality and to ensure proper standards were met. Then STP configuration scripts were prepared by myself and provided to on site engineer for loading on to STP using its terminal.

After STP configuration testing begun and for this various test scenario were created to check requirement and full functionality. Multiple test calls were made to other mobile operator and each operator number was Ported/shifted to other operator to check whether STP is properly routing and providing signaling to MSC & HLR. For example, Vodafone test number was ported out to O2 Network and then test calls were made individually to remaining mobile operator.

Redundancy test were performed all three active STP to check Backup STP functionality. There should be zero minute outage in services while performing redundancy test.

After successful testing all STPs database of existing network was loaded on to every STP in order to share load of already deployed STP.

CE 3.9

KPIs for network optimization and expansion

During integration of STP in existing Vodafone network multiples issues were faced but the major issue were

- **Configuration of protection Links (M2PA)**
- **SS7 Link for signaling**

Configuration of protection Links (M2PA)

As STP is deployed in pair so it is required to have links for both STP with each other for sharing purposes. It is done to protect the network from outages and in case of failure, the stand node will start working without interpreting services even for one seconds. For this M2PA link is configured on both STPs and for this purpose I was assigning one IP path to both the links. And by doing STP were not properly communicating resulting in failure of redundancy. The issue was resolved when two diverse IP paths were used to connect both M2PA links. Different IP paths are required to achieve complete protection.

SS7 Link for signaling

SS7 links are defined on STP Pair for communication/signaling purposes and this link was not operating properly and because of this, SRI packets were not properly sent to HLR. So No test number were receiving any SMS or calls. For this trace function was used on STP and then compared with configuration script and Network LLD and found that due to mismatch of MAP version at STP and HLR, the calls and SMS are not routing properly. Same MAP version was defined on both STP and HLR ends and successfully calls and SMS were received on test number.

CE 3.10

Summary

It was very important engineering project of my career as I have to maintain entire NSS Nodes and have to increase its capacity according to business demands. During this project I got Multi-vendor experience as Vodafone has deployed Alcatel, Ericsson and NSN Equipment. So it . This project also raised my project forecasting, scheduling, steering & management skills. I also learned about using outside resources when the team was not able to figure out the complicated issues. I also learned a lot about team management skill.