Rasto Kiplangat (Kenya)

Host organization: M-Kopa (Kenya)

ICats role: IT/Lead System Engineer

ICats duration: Sep – Dec 2013 (full-time)

Degree: Master in Engineering/Technology Management, Washington State

Professional experience: 10 years with Microsoft (USA) as Systems Engineer for MSN online, AdCenter and Bing Search

SUMMARY:

I grew up on a small village in West of Nairobi, South Rift region. Growing up, using kerosene tins was the only source of light I knew for studying. It was smoky and provided dim light but I had no idea that there was any alternative to it.

Having experienced using kerosene tins, and now having had the opportunity to see the impact M-KOPA is making in the rural communities, it truly is amazing! As a matter of fact, I made my family

back in the rural areas to purchase this great solar device and get rid of all the kerosene tins.

M-KOPA Solar embraced mobile technology to help rural Kenyan communities off the electric grid to own solar systems through an affordable 12-month mobile money payment plan. With an equivalent of half a dollar a day, the customers can make 365 easy payments to own the solar asset within one year. The collection of these bulk payments from customers in remote parts of the country, would be a nightmare without the use of information systems. M-KOPA developed in-house applications to manage the payment collections and communicate with the customers.

IMPACT AND IMPROVEMENTS:

With more than 10 years of experience at Microsoft Corporation, it was important for me to contribute to the betterment of M-KOPA Systems by doing the following:

1. *Systems Engineering and Improvements*
   With a company growing as fast as M-KOPA, it is fundamental that the systems are efficient to manage increased data flow and processing. I reviewed M-KOPA's production systems and identified bottlenecks in their server performance and with the support of the management, I made a plan to upgrade to new hardware. My manager and I led the migration of applications and databases to the new hardware. The performance was improved significantly and less downtimes are now experienced as compared to the past. This has enabled the company to focus on customer service.

2. *Monitoring*

M-KOPA customers typically make payments for their devices at any time of the day using mobile money transfer system. Once they pay, M-KOPA is notified and the customer's account is credited to enable the device to work. If payment communication is not received due to technical issues, the customer may be in darkness. In the past(before I came in)the only way M-Kopa got to know about such issues, was through a manual check when they noticed that payments had not streamed in for a period of about 3 hours. It was therefore imperative to implement a monitoring system to monitor payment alerts. Having seen this gap, I implanted a monitoring system that is in use to-date. With the monitoring system in place, any issues arising are dealt with immediately as compared to the past where it took at least 3 hours. In addition, this monitoring system sorts out any problems without interfering with the customer's usage of the device.

3. *Lead Technical Integration of ESEYE/M-KOPA application Server into Safaricom Data Centre*

M-KOPA's data flow entails a round trip to the UK where a Partner; Eseye collects the data and transmits it to M-KOPA. Given the distance travel over the internet, the latency between M-KOPA's Systems and Eseye's systems was long. It became important to have both Eseye Servers and M-KOPA servers to exchange data within the same network. I supported M-Kopa migrate the server hosting to Kenya by designing and leading the efforts to achieve this goal. I also mapped out the technical requirements for the proposed migration. This efforts included liaising with hosting providers where the servers would sit, as well as the Eseye engineering team. The project got completed and the servers are now in Kenya. This has led to M-KOPA having the ability to accommodate the increasing amount data faster.

4. *Second Generation M-KOPA System*

In the second half of 2013, M-KOPA's second generation system was developed and designed to run on a more robust system. I designed the infrastructure design and implemented it. This system is a huge improvement from the first generation in terms of the capacity to handle more data processing and capability. In addition, I helped build a stand by system hosted in Microsoft's modern virtual infrastructure so that in case something happened to the servers in Kenya, it would be possible to switch over to the stand-by site.

5. *Improvements*

I have supported in improvements in the following areas:

- Designed High level System infrastructure

- Liaised with both Safaricom and Eseye technical teams to undertake server migration.

- Engaged with technical and business user teams to spot improvements and data automation opportunities for M-KOPAnet first and second generation systems.

- Led and supported development teams on upgrades and feature additions to M-Kopa application

CONCLUSION:

By replacing a kerosene lamp with an M-KOPA financed product, a consumer can expect to save an entire year's income within three years of owning the product. In addition to cost savings, a household will have increased safety from the elimination of accidental fires caused by kerosene lamps, better health due to lower levels of indoor air pollution, and increased productivity.

Solar home systems also have positive outcomes on education as children are able to study into the evening hours due to high quality lighting from M-KOPA.

I was honoured to be part of this team. Thank you!