

Virtualization Technology Separating a Single Device into Multiple Virtual Devices for Android smartphones



Alec Main - CEO

CEOCFO: *Mr. Main, your website indicates Graphite Software is redefining the mobile user experience. How so?*

Mr. Main: We have developed a virtualization technology for Android smartphones that allows you to separate your device into multiple virtual devices. It allows you to have multiple, what we call, secure spaces on a single device. This allows the user to segregate their apps and their data for a variety of different use cases. Maybe you want to have your personal data separated from your enterprise data. One space would be for personal privacy. Another space is for enterprise. It also allows you to remotely manage these spaces on the device. Therefore, it is a virtualization solution combined with a cloud management solution. The benefit of a multi-persona solution is that it allows people to carry one device instead of multiple devices. The original vision for all of this came when we saw that smartphones, tablets as well, have become very, very converged, so that your whole life is now on these devices. There are challenges though, because you download all of these different apps onto your device and there is a permissions model which says, "I need to allow this app to access my contacts and this app to access my location" and visa versa and more. It is quite complicated. You cannot really keep track of it and your choice is either you can get the app by accepting the permissions or you do not get the app, there is no in between. Fundamentally, in our lives we tend to bucket our lives into different things. I have a Facebook account and I talk to certain friends on Facebook. I have a LinkedIn account and I talk to certain friends there. I work with a certain group of people at work and I invite certain people into my home and have parties and we tend to have different buckets or different groups or different rooms or different spaces and that is how we live our lives. Instead, what is happening in the digital world is that everything is getting completely converged onto one device and that is not what I wanted from a personal privacy standpoint. I see many different practical reasons for separating it out.

CEOCFO: *How do you insure ease of use?*

Mr. Main: That is actually one of the things that we pride ourselves on. It is very easy to switch back and forth between different spaces on a device. There are couple of intuitive ways that you can do it. You can just pull down the notification bar and select the desired space or you can use an app. It is similar to folders; you can pop open another folder and you have a different view. There is a very small learning curve. You have to understand the concept of using different spaces. However, other than that it is very easy and very fast to move between spaces. I think that is what differentiated us between other attempts at this in the past.

CEOCFO: *What were some of the challenges in putting the technology together?*

Mr. Main: There are three aspects of the solution that were challenging. Performance, ease of integration, and ease of use. You can do virtualization on PCs, laptops and servers. However, doing it on phones has always been a challenge due to performance reasons. There has been a big change with server virtualization where they have switched in to more of a single kernel, single operating system. That was an inspiration for us, because past attempts on mobile devices had huge performance problems. You cannot really run multiple operating systems on a smartphone. They are getting much, much faster, but nevertheless there are always battery and memory concerns. Therefore, past techniques never worked. We came up with a way of doing this from a very light weight standpoint. The secondary benefit of that was that it was very easy to integrate into the device. In the past people who have tried to do virtualization have found that it takes so much effort to integrate into the device. The hardware these days is changing so quickly that by the time you integrate all of the drivers there is a whole new set of drivers to integrate and you are just on this horrendous constant integration path that no one likes. It was not working from a technology standpoint. Then there was the third aspect, which was really

being able to do this in a quick and easy way with a simple user interface. Those are all the things that we have really enabled. It is very easy to integrate it into Android, it is fast and the user experience is excellent and we still have the security techniques, so everything is isolated.

CEOCFO: *Is the system in use today? Where are you in the development?*

Mr. Main: Yes. If you buy a Blackphone, you will find it to be a privacy enabled phone. There has been a lot of press about it recently. The Blackphone is from a company called Silent Circle. They launched last year and it is on all of those devices. We also have some government customers that we work with. They love the idea of being able to have multiple devices in one. Currently, they are not carrying around two devices, they are carrying around many, many devices. To be able to consolidate several devices into one is really powerful. Past technologies would only allow you to have two virtual spaces on the device, whereas with us you can have as many as you want; you can have many, many spaces.

“We are fundamentally changing the way that people are going to interact with devices and smartphones.” - Alec Main

CEOCFO: *What types of people tend to use your services?*

Mr. Main: Right now, the focus tends to be on privacy and security minded people. Therefore, people are wanting to have personal areas. Maybe you have different personas that you want to have on the internet or you want to isolate certain apps from other apps. You want all of your games, like Angry Birds and all of that kind of stuff but you do not want all of those free apps to be mining your personal information. Therefore, one of our core users are the privacy aware users. Secondly, there are enterprise users. Very simply, you want to have a work space and a personal space. Both the employee and the enterprise want to make sure that those are separate. The enterprise does not want your personal data mixing with the enterprise apps and data. You do not want the enterprise spying on your personal information and what you do after work as well. Therefore, you can have two different spaces. Of course, if you leave the company you can delete the workspace or they can remotely go ahead and delete the workspace as well. It satisfies the needs of both the Enterprise and the employee. The third area that we are working is in mobile banking. There is a huge trend towards people doing more and more mobile banking, especially in China. There have been a number of attacks by replacing apps or having people get malware onto their device that goes after your banking information and ends up compromising your banking information or your identity. For this scenario we have a separate space that is managed by the banks or possibly by us. It insures that only the real, legitimate banking apps are in the banking space. When you switch into there you are sure that you are dealing with legitimate approved banking apps and you have not, by mistake, clicked on some link or because you have got some free game from someone it has not compromised your banking app, which will then compromise your banking information. In the future, once we are more broadly deployed, we see all sorts of other applications around eCommerce, mobile marketing and social media. There has fundamentally been a desire for the big internet companies and big internet brands to be able to control part of the user experience. You see companies like Amazon producing their own phones, like the Fire phone. You see Facebook producing their own launchers so that they can control your home screen. However, none of these have really been successful. That is because consumers often do not want Facebook all the time or they do not want Amazon all the time. It is not their buying decision when they go to buy a phone. However, what we allow is for these big brands to have their own real estate on the phone and have a curated, very rich, customized experience. That is where we see the future. However, that is not today, that is next year.

CEOCFO: *What do you say to the skeptics?*

Mr. Main: There are two aspects to the skeptics. One is, “Is it a good user experience and is it easy for people to use this,” and I think, “We have devices deployed in the field and the answer is yes! It is very easy to use.” Does that mean that it is for one hundred percent of the market today? No. Do I foresee my mother using this? No. She can barely use her smartphone. It all takes time. However, the proof is in the pudding. It is out there on devices. It is very easy to use. The second skeptic would say, “Is it really isolated, is it really secure?” We have had many security minded people review the solution. We have done our own testing. We are in the process with a variety of government certifications and the answer is “Yes, this is very secure.” Is security one hundred percent guaranteed? No, it is not. There are always vulnerabilities. We understand that and we work to make sure that anything that comes up is addressed properly and quickly. We work with device manufacturers like Blackphone, which guarantee updates to address any vulnerabilities very quickly. Security is always a bit of a treadmill and an arms race in the sense that you always have to respond quickly to issues when they arise.

CEOCFO: *Is the plan to have these in the OEM segment or will it be available to consumers?*

Mr. Main: To do what we do, we need to work with the OEMs. We are currently working with five different OEMs right now. We have the Blackphone that is out. We will be having new phone launches in the next few months. By the end of

this year there should be an installed base of about ten million phones. Unfortunately, it is not downloadable. You have to go buy one of the phones that have the capability on it. If you are a privacy focused person, then I highly recommend that you go and buy a Blackphone.

CEOFCO: *Do you foresee a point where it would just be standard in every phone?*

Mr. Main: That is absolutely our goal!

CEOFCO: *Even if a person decided not to use it, it would be nice to know that it is there!*

Mr. Main: Actually, you are right. The way that our system works is that if you do not want to use it, it is just a standard stock Android phone. You do not have to turn it on. It is there if you want to take advantage of it. The OEMs put an icon which says, "Do you want to create a mobile banking space?" If you did not know what it was, then when you press the icon it will pop up and say, "This creates a secure mobile banking space. Do you want to create one?" You can say no and just carry on doing what you were doing. However, if you say yes then it will go create this space and populate it with the proper, verified apps. Then you just use that icon to jump into that space and back. It is really very easy to use. It is something that you can turn on if you are interested.

CEOFCO: *What is the plan for the next year or so?*

Mr. Main: As I said, we already have the Blackphone, where we are on a sizeable number of phones right now and that is going to continue to grow. We are forecasting ten million phones in this year. The number of phones that are made each year is mind boggling! We have been expanding out with OEMs in both China and India. This really will become a de facto technology on these phones. Part of it is that we are enabling different app ecosystems on these different phones and part of our business model is that we share any kind of revenue associated with that, with the OEMs. They are very incented to get our technology on the device and generate additional revenue. Right now, OEMs are all struggling with the question of, "Do I just commoditize hardware." What we are doing is enabling them to turn on different services and features on their phone, which can generate revenue for them. They are all very interested in working with us. It is just a matter of getting the first ones integrated and deployed and installed and we see that process is now getting so much faster.

CEOFCO: *Are you funded for the next steps and the continued growth? Will you be seeking partnerships or funding?*

Mr. Main: We are venture backed. We raised \$2 million in 2013. We do intend to start looking at raising some additional money. Right now, the demand is beginning to outstrip our capabilities and we need to grow to more people, and that takes an investment. While we are very focused at the moment we also see lots of exciting social media types of applications for our technology. There is another segment of the market, where teenagers and kids love to customize their home screens and get all of the coolest apps and then they show their friends like, "Look, my phone is better than yours!" What we can do with our technology is to build a social media aspect so that you can share your configurations with your friends or your family or whoever it may be. There are some exciting things that we can build on top of our initial platform and that take some additional resources, as well. There are lots of new potential revenue generation approaches with this technology.

CEOFCO: *What surprised you as the concept has grown and developed and is now in use?*

Mr. Main: The nice surprise is that in the past people said, "No one cares about privacy". I guess we were fortunate; although I hate to call it fortunate, in some respects with the Edward Snowden leaks, where suddenly everyone became aware of privacy. Look at Facebook and everything that people are posting. Now what we have found is that people actually do care about privacy and there is quite a market for that. Obviously, when you start a company you are never one hundred percent sure that what you are thinking is going to be right.

CEOFCO: *Why is Graphite Software noteworthy?*

Mr. Main: We are fundamentally changing the way that people are going to interact with devices and smartphones. We are going to allow you to bucket your world and download and curate and share and have different app ecosystems, so you are really going to have a choice as to how you use your smartphone. That is a major change with how it is right now. Right now, you are kind of locked in to the device manufacturer. If you buy an Apple phone then everything else that you buy has to be Apple. If you buy an Amazon phone, you lock into all of that. However, here we are giving people the ability to do whatever they want; download multiple different systems, yet still retain their personal privacy.

Interview conducted by: Lynn Fosse, Senior Editor, CEOFCO Magazine



Graphite Software

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