UNIVERSITY OF BIRMINGHAM

Excitor G/On Evaluation

Aim and Objectives

The aim of this experiment is to evaluate the feasibility of replacing the secured laptops with computer-on-a-stick (G/On Solution) in some business circumstances.

We aim to evaluate the G-On solution in the following areas in the experiment:

- User Acceptance Testing: whether it is easy enough to use for end user
- Reliability Testing: does the G/On solution works reliably to support user's day-to-day business requirements
- Performance Testing: if it has good/acceptable performance to do everyday tasks
- Security Testing: whether it provides secure access to business applications and data
- Cost Comparison: whether it is a cost effective solution comparing with secured laptops

G/On Introduction

Excitor G/On® is a remote access solution that works with any Windows, Mac and Linux PC. G/On OS is based on simplified linux OS, its specific task is to provide a secure environment to give users secure access to corporate, server side resources. It can provide secure access to Remote Desktop, Citrix or web applications from home PCs or non-corporate owned PCs, without the need for a VPN.

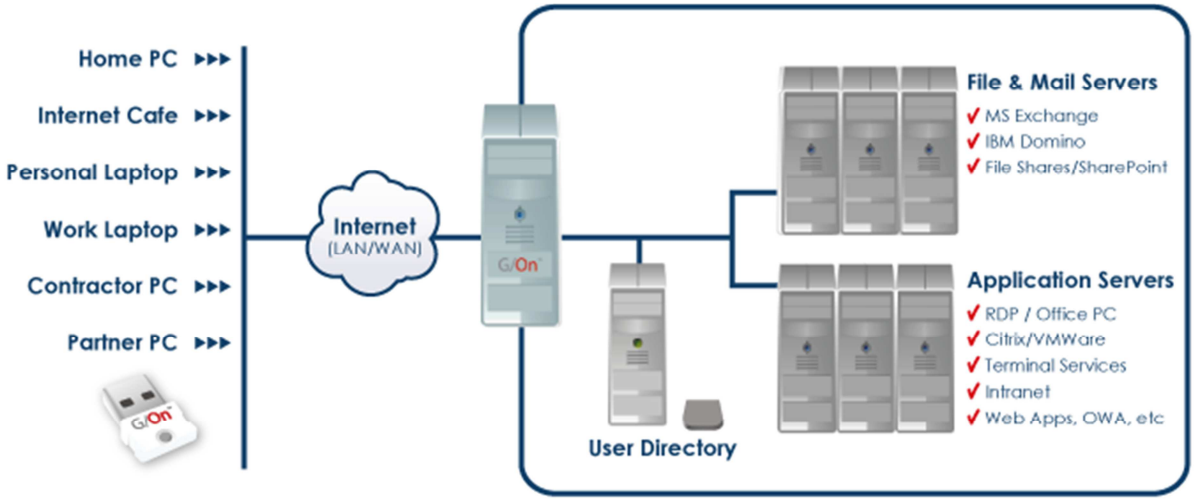

Figure 1 G/on Client Server Architecture

The key benefits of G/On include the following:

- Reduced Cost: it works with entry level laptops, old equipment and home PCs. So there is no need to provide users with high end laptops.
- Flexibility: It connects users to IT system including Remote Desktop (RDP), Citrix, and Terminal Services, directly to user's PC in the office, VMWare, Intranet or Web Applications. It can be deployed as a software client or as a full bootable USB stick for maximum mobility.
- Secure: The client/server architecture creates a protected connection between a client proxy and a server proxy that isolates the PC from the network ensuring that all data stays inside the company network. With the G/On 2FA bootable USB token, it provides a locked down OS build and disables the local hard drive to prevent data leakage or attack from malware.
- Easy to Use: Users sign in to G/On® once, which authenticates the user and the G/On 2FA USB token. Applications are then accessed through a G/On® menu which is dynamically published from the server.

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First Trial of G/On

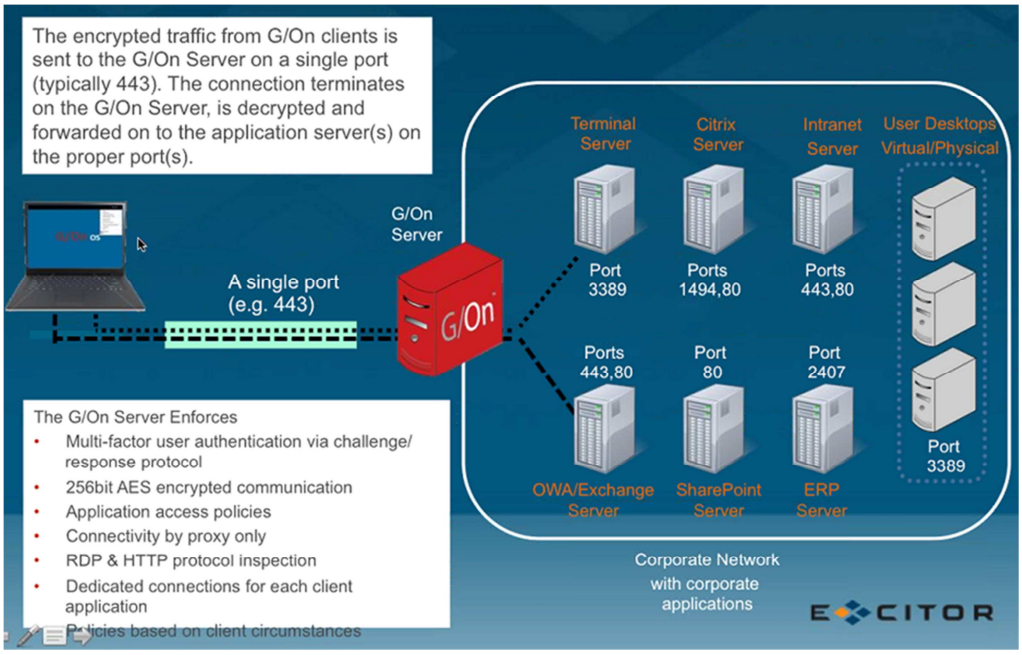
The trial of G/On is based on G/On OS Client Demo version. Two trial version of G.On 2FA bootable USB token were tested on three standard lab computers in the university network environment.

In order to boot up from the G/On token, computer BIOS needs to be configured to allow boot up from USB stick first. In the corporate environment, some security measures are applied to the corporate PC or laptops, so normal users may not have the permission to change the boot sequence.

After the boot sequence is configured to USB boot up first, both of the tokens only boot up into the G/on screen but failing to load the G/On login menu on two computers; on the third computer, G/On token successfully loads up with the G/on login menu.

On the G/on login menu, users will need to connect to the network first. The wired network option is first selected, but after a few attempts, the connection failed. Apple iPhone hotspot is also tried as to connect G/On to mobile network, but it didn't succeed either.

G/On demo client uses a single port (e.g. Port 443) to connect to G/on server. But in corporate environment, due to the group policy or corporate network protocol, it is highly likely that the group policy has disabled the port, thus leading to failure to connect to network. This issue has been raised with Excitor, and Excitor suggested to try in a different environment such as home environment.



G/On Server - Application Management

Further Testing in Home Environment

Starting G/On in home environment is easier as user has full control of the BIOS setting. It takes less than 30 seconds for G/On Stick to start up. It will then prompt the user to connect to network. If the user has input the password before, it will remember the setting and make the connection automatically.

Although G/On starts up quite quickly, user will need to wait until a popup saying 'G/On Menu is ready'. And then user can click on the G/On icon at the top right of the screen to open up a menu of approved remote access applications. These applications usually are configured on the G/On server side, and depending on the users' privilege, different applications will be granted to users.

It is worth to note, during the testing at home, although both of the G/on demo sticks start up and connecting to wireless network successfully. There are occasions that the G/On menu didn't load up successfully. So user didn't see the G menu at the right hand corer, and have to restart the computer to load up the G/On menu again. For testing and demo purpose, it is still acceptable. But in the real uses, its stability needs to be thoroughly tested.

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Testing Results

- **User Acceptance Testing:** using G/on in a home environment is easier than in the corporate environment as user have full control of the computer;
- **Reliability Testing:** two G/On sticks were tested with occasions of failure to load up the G/On menu;
- **Performance Testing:** starting up is less than 30 seconds, real time performance will depend on the application and network speed;
- **Security Testing:** it provides secure access and isolated environment from the host PC;
- **Cost Comparison:** G/on Stick is much cheaper than secured laptop.

User Scenarios

G/On has been adopted in the government and industrial for different purpose. Some user cases are listed below:

- Security Compliance – more secure than OWA, VPN, Citrix on "unmanaged" PC due to isolation from malware, key loggers etc.
- Lower TCO than company laptops – don't have to provide hardware, software and support overheads.
- Simplify Citrix support – Remove dependency for CAG or netscaler
- Enable "Occasional" or secure flexible workers – without managed device costs, provide thin client for sensitive home works (Adult/Children's Services, DWP etc)
- Shared Services, Partners and Contractors – control access to specific applications and systems, isolating risk from Malware and without having to "trust" the 3rd party connecting devices
- Reduce the cost of supporting existing remote workers – migrate users from traditional VPN managed laptop to a single server thin client bootable OS
- Extend the lifecycle of "end of life" equipment – remove hard drive, insert G/On USB token and reissue machine as fully managed device
- Disaster recovery – maintain pool of tokens instead of laptops to cover extreme weather, major events, DR requirements
- Simplify user experience – Non intrusive for home PC; doesn't require NAC, URLs

License Model

G/On has client and server architecture. There is no charge on the G/On server side; the cost calculation is based on the number of clients. G/on client can be hardware solution and software solution. User can also choose to provide USB themselves or buy from Excitor. If users provide the USB sticks, then the client doesn't come with 2-factor authentication capability. On the client side, the license is calculated based on how many clients are connected and also how many applications are enabled per device. Excitor will be able to tailor the solution design to meet the university requirements.

Conclusion and Recommendation

1. Excitor G/On certainly has its benefits in providing secure access to corporate resources from any unmanaged computer or laptop device, provided the unmanaged devices are user accessible. For such criteria, it will be best for the home environment, where users have full control of the computer thus user can easily change the BIOS booting sequence and have full access to the device ports.

2. Excitor G/on could also be used as thin client combined with reuse of the old laptop, so it potentially could save the cost of providing high end laptop for external partners or temporary workers.

3. The feasibility is quite low for using G/on computer-on-a-stick to replace the secured laptop completely in the business environment. Because the users would not necessarily have full access to a computer/laptop. However, if G/on is set up on the old recycled laptop, it could be a thin client and provide the secure access to the corporate services.

4. Comparing the cost, potentially G/on is a possible solution to replace VPN because of the low maintenance and overhead involved.

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