Driving Innovation

Results of competition: Severn Valley Cyber Launchpad

Total available funding for this competition was £500k from the Technology Strategy Board.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Babble IT Systems Limited	Nemesis - perimeter behaviour detection as a service	£76,847	£46,108

Project description - provided by applicants

Nemesis is a perimeter behaviour detection service that looks at network health based on what information and data is passing into and out of an organisation.

This service provides detection of malware behaviour at the boundary allows an organisation to monitor inappropriate behaviour within the organisation and also aids in detecting data leakage.

The service is provided by Babble IT Systems Ltd., a specialist in data security.

Page **1** of **7**

Driving Innovation

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
C2B2 Consulting Limited	Detecting the Malicious Insider	£99,140	£59,484

Project description - provided by applicants

Detecting the Malicious Insider is a fundamental problem of cyber security today as highlighted by recent high profile cyber security incidents including the Edward Snowden leaks from the NSA and GCHQ. They key feature that distinguishes these attacks from outsider attack like DDOS and external hacking attempts is that the individuals carrying out the attacks abuse security credentials they have legitimately to access, extract and leak large volumes of information.

The challenge for the security industry is how to detect the anomalous access patterns these individuals create when extracting data from core information systems and preventing the access in real time before the damage is done. In this project we are researching whether new, emerging middleware technologies like Data Grids, Event processing engines and NoSQL data stores can sift through the large volume of events generated by users accessing core information systems with sufficient speed to detect malicious insiders fast enough to act and prevent these incidents.

Page 2 of 7 9 April 2014

Driving Innovation

Results of competition: Severn Valley Cyber Launchpad

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Drisq Limited	The Semantic Detection of Viruses	£88,380	£53,028

Project description - provided by applicants

All pieces of self-replicating malware have a signature. However, malware can change form, so the signature of the malware is different even though it has the same destructive behaviour. This means that current techniques will always play catch up with new forms of the same piece of self-replicating malware.

By using formal methods to detect the semantics of self-replication, we have the opportunity to detect any self-replicating malware (even if it is unknown or metamorphic) and thus have an opportunity to remove it before any damage can be done. The approach is novel because current techniques detect the signature of malware and then remove it.

We have undertaken foundation research to show that we can detect self-replicating behaviour in a sample of obfuscated binary for an ARM processor. Our objective in this project is to expand the applicability and examine scalability.

Page **3** of **7 9 April 2014**

Driving Innovation

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Infinite Precision Ltd	Cyber Enterprise Security - predict it, fix it	£84,204	£50,522

Project description - provided by applicants

This project is a new approach to making sure an enterprise (be that a business, defence such as the MoD or Health) can function as best as possible as the state of cyber changes. This could be as a result of cyber-attack or failure.

This project provides enterprise level intelligence to those responsible for the strategic operation of the business. This intelligence relates to the impact on the business capabilities, such as whether Sales, Customer Orders or Human Resources have been affected.

If this project identifies a capability shortfall (that is there is not enough cyber infrastructure such as servers and communication networks) then the cyber infrastructure is dynamically reconfigured. This ensures the business runs as effectively as possible in a best effort mode concentrating on those essential capabilities.

Page 4 of 7 9 April 2014

Driving Innovation

Results of competition: Severn Valley Cyber Launchpad

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Montvieux Limited	Digital Fingerprinting	£98,752	£59,251

Project description - provided by applicants

Current commercial tools aimed at data loss prevention are mostly rule based; inspecting data against a set of rules and choosing to block (alert) or allow like a firewall. The rules are content or context based and requires significant effort to develop and maintain bespoke rules to protect a specific organisations assets.

This research has developed a digital fingerprinting technique that uniquely identifies the content of classified documents stored within a network, based on the content itself and not the presentation or encoding of the file in which it is stored. The technique allows the digital fingerprinting of a range of file formats, including images and source code that can be used to detect attempts to move sensitive data, either as while documents or fragments of documents, out of a network.

Page 5 of 7 9 April 2014

Driving Innovation

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PixelPin Limited	PixelPin	£99,903	£59,942

Project description - provided by applicants

PixelPin reduces the risk of passwords breaches by providing a secure authentication service that uses pictures as the authentication mechanism. Users pick 4 passpoints on a picture, and that becomes their method of authentication.

PixelPin works on any device and gives the user a single sign on. This project will investigate and then implement the FIDO specifications into the PixelPin service, allowing PixelPin to be a software token in the FIDO list of authenticators.

Page **6** of **7** 9 April **2014**

Driving Innovation

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Westgate Cyber Security Limited	Westgate USB Crypto	£99,335	£59,601

Project description - provided by applicants

IronShield is a portable device which provides instantly deployable, zero-configuration hardware-based virtual private networking (VPN) to high-risk, high-profile enterprise markets and customers.

Page **7** of **7** 9 April **2014**