Australian Government
Department of Defence
Science and Technology

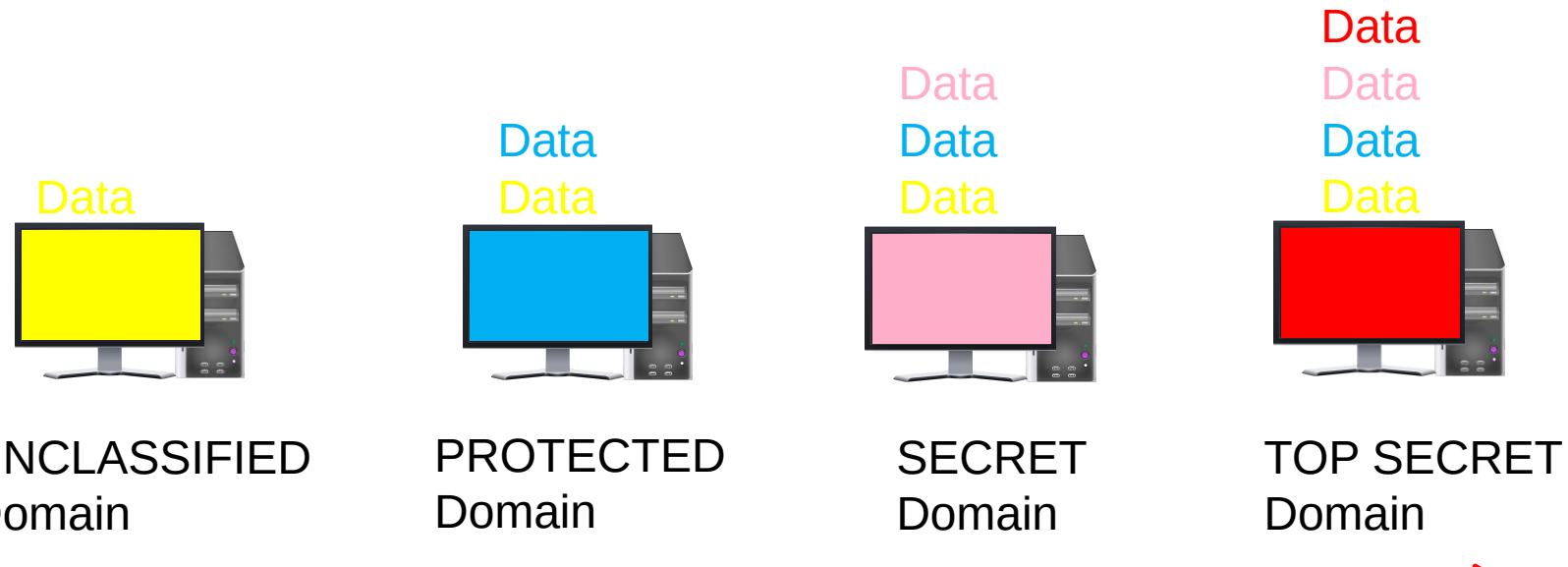
ACSW 2019 - Sydney

Information Associations for Multi-Domain Applications

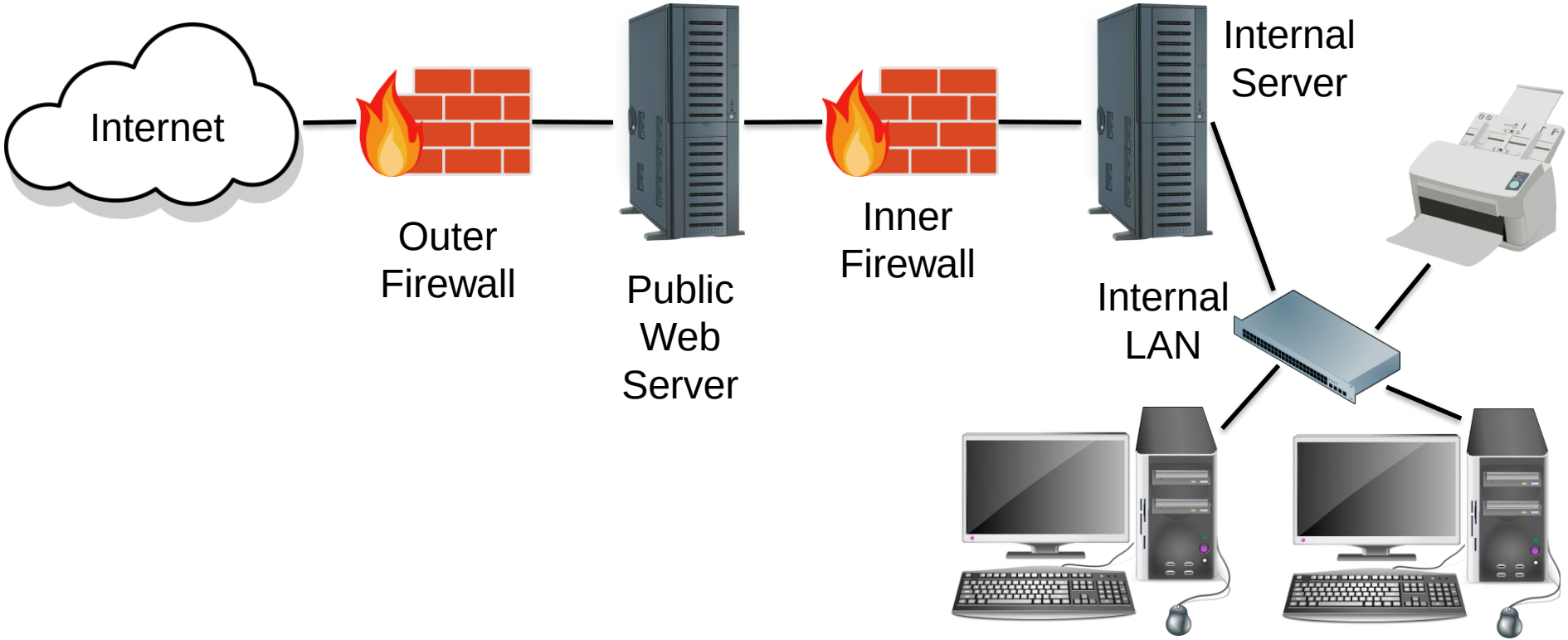
Addressing Data Utility in Segregated Networks

John Shield, Samuel Chenoweth (presenter), Patrick Prendergast, Mark Beaumont, Chris North and Brad Hopkins

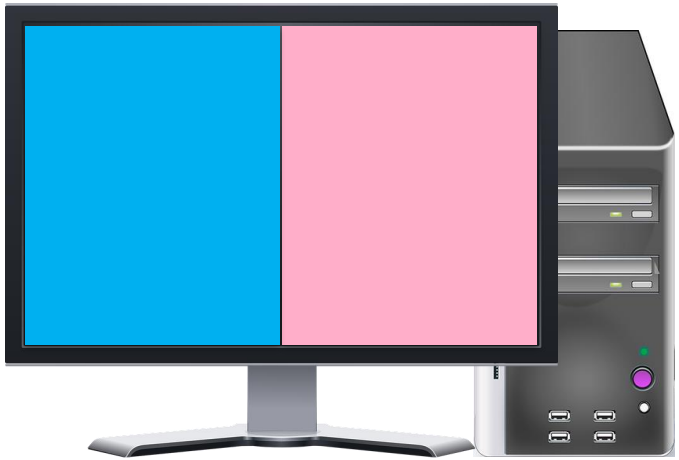
Need for Domain Segregation: Defence

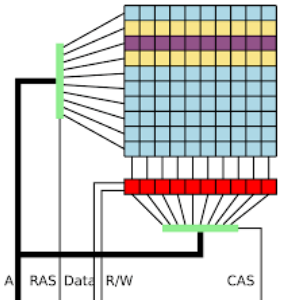


Need for Domain Segregation: Corporate



Software Segregation Provides Weak Security





Strong Security Demands Network Segregation

SECRET Domain

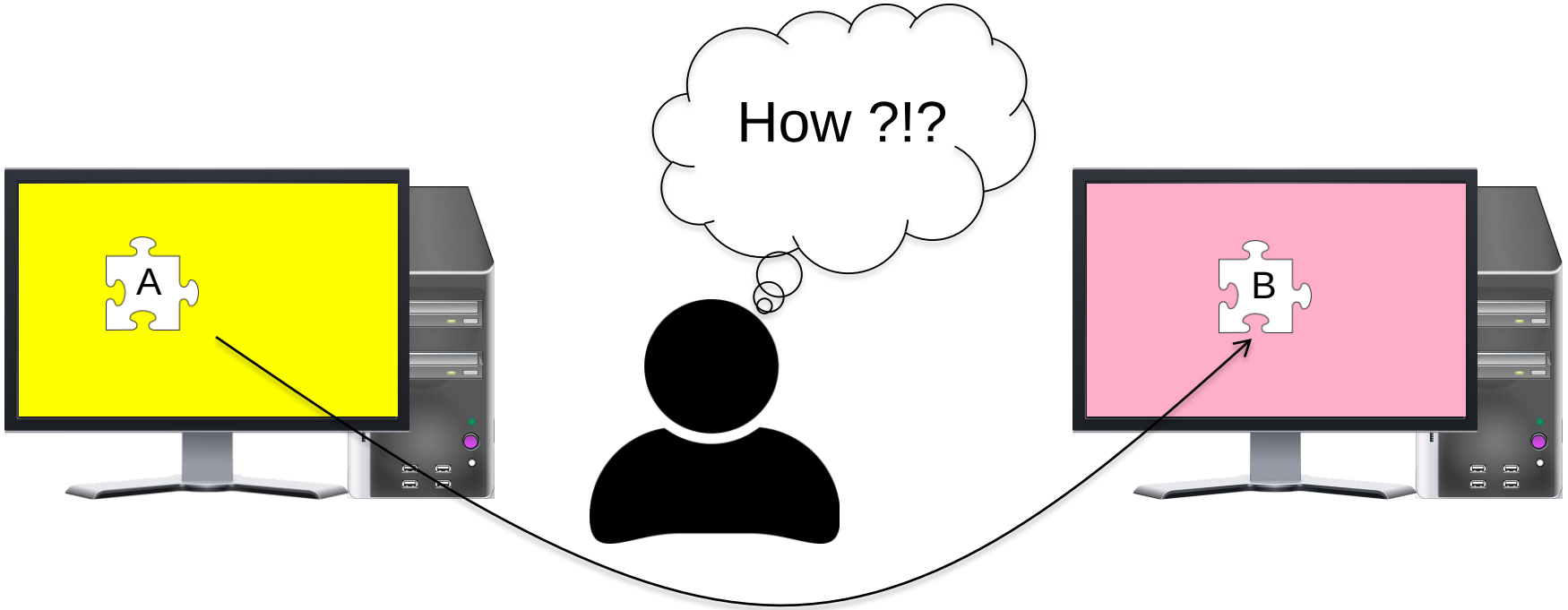
Air Gap

PROTECTED Domain

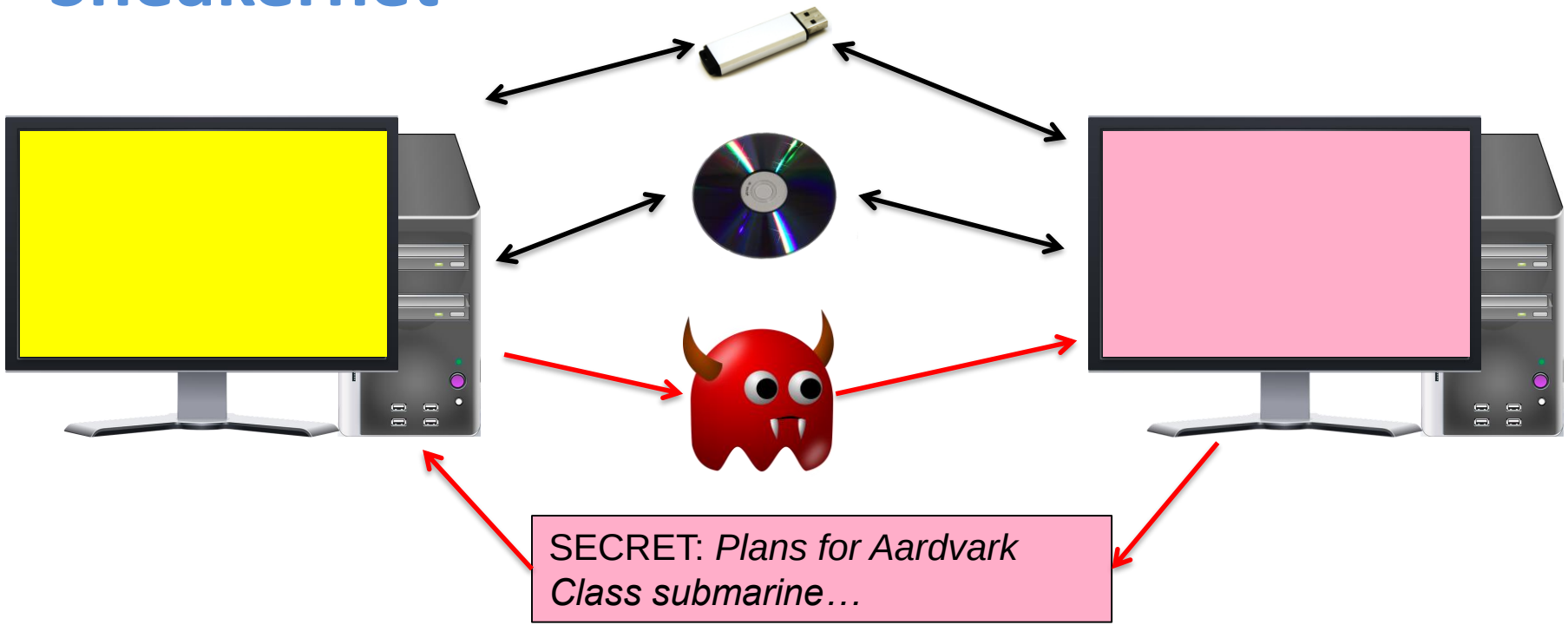
Air Gap

UNCLASSIFIED Domain

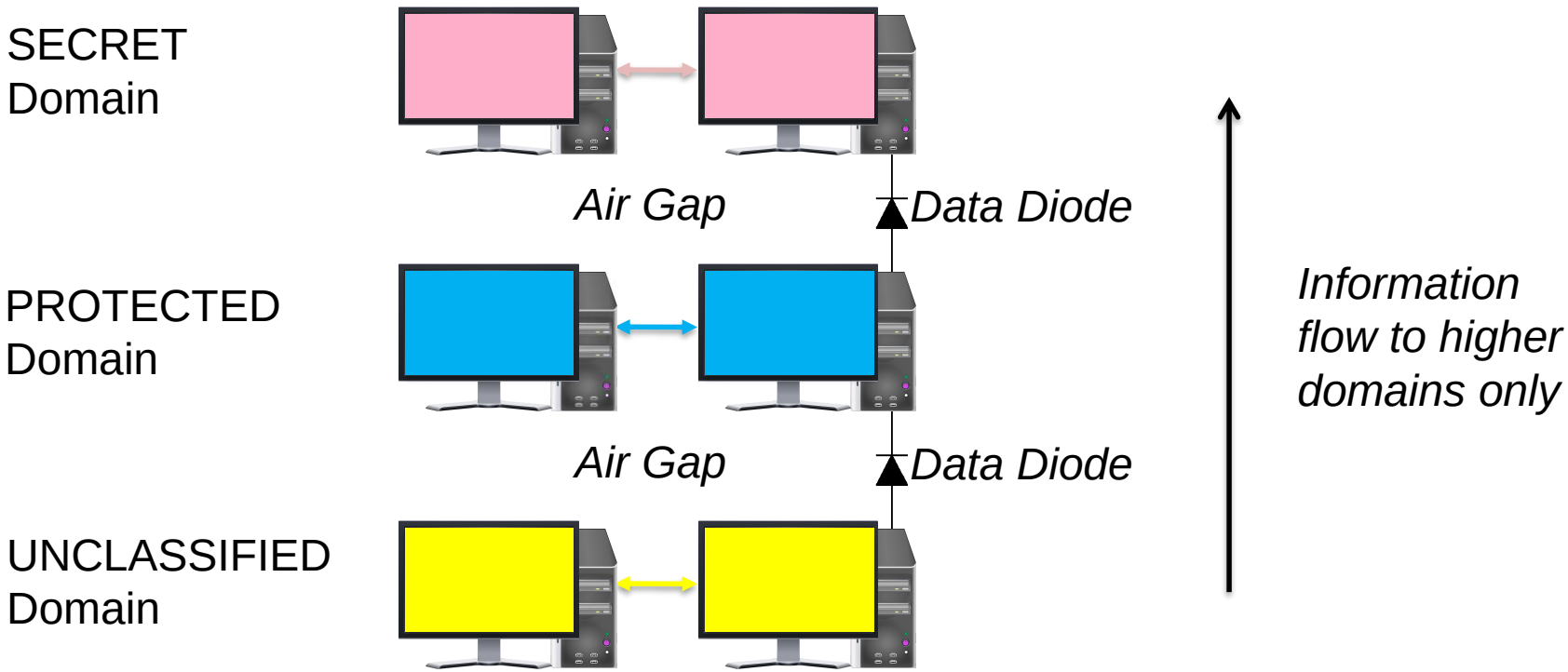
Network Segregation Limits Utility



Network Segregation Workaround: "Sneakernet"



Network Segregation Workaround: Data Diode



Network Segregation Workaround: Trustworthy Gateway

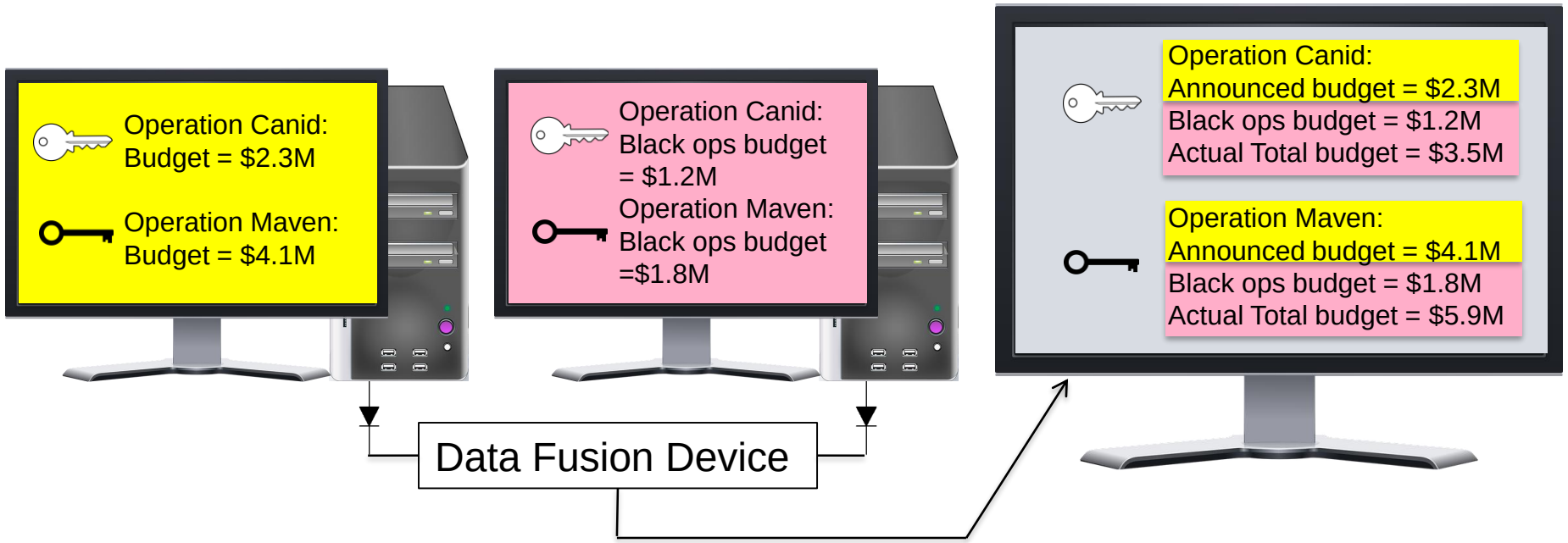
SECRET Domain

Trustworthy Gateway

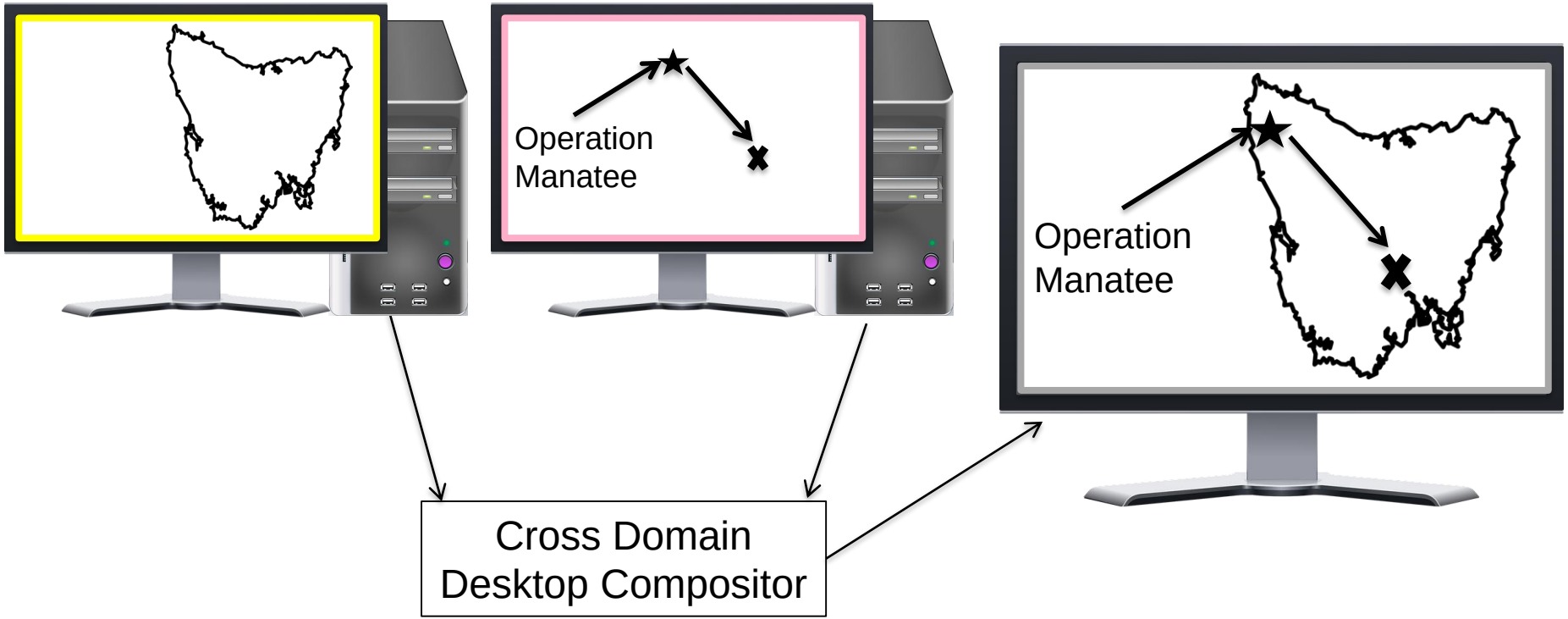
UNCLASSIFIED Domain

Tightly controlled information flows in both directions

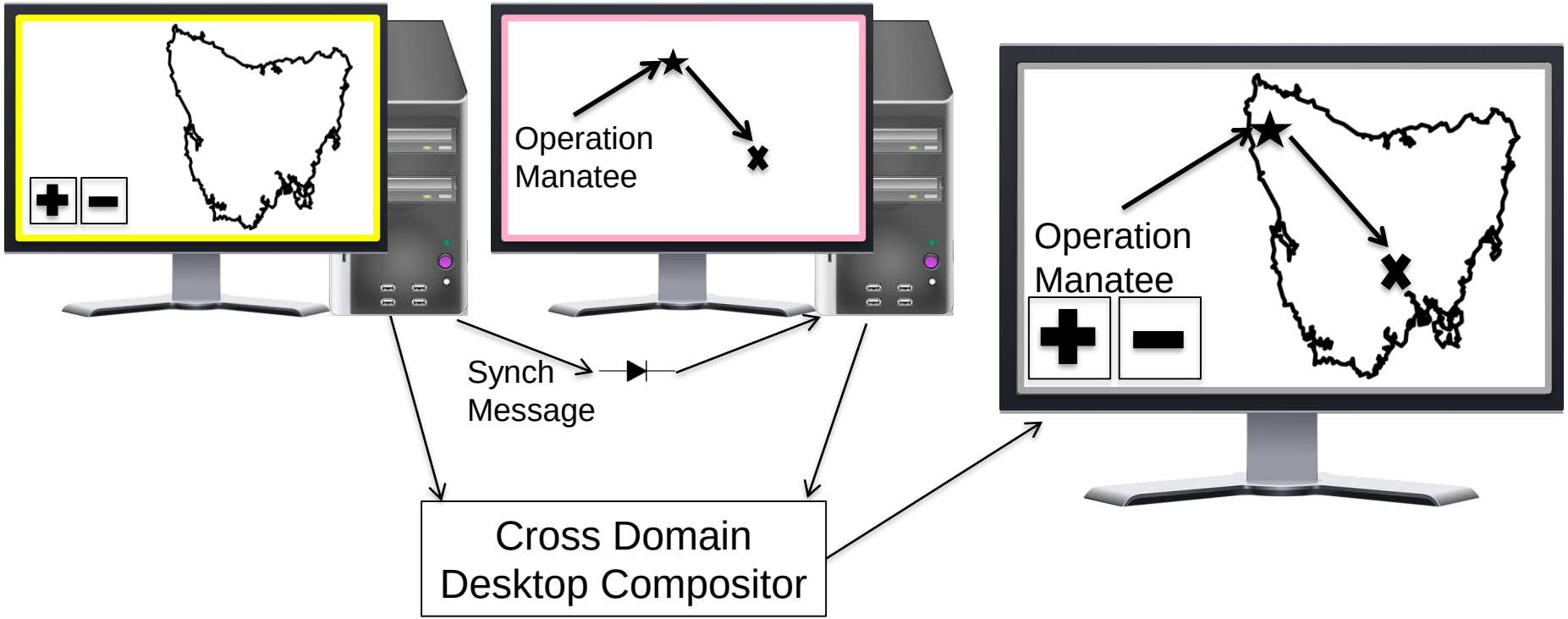
Our New Solution: Information Associations



Visual Information Association

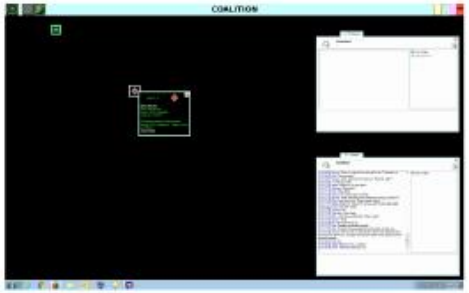


Visual Information Association - Coordination

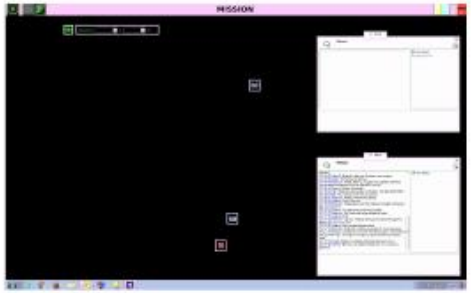


Multi-Domain Graphical Interface Library

Unclassified Domain



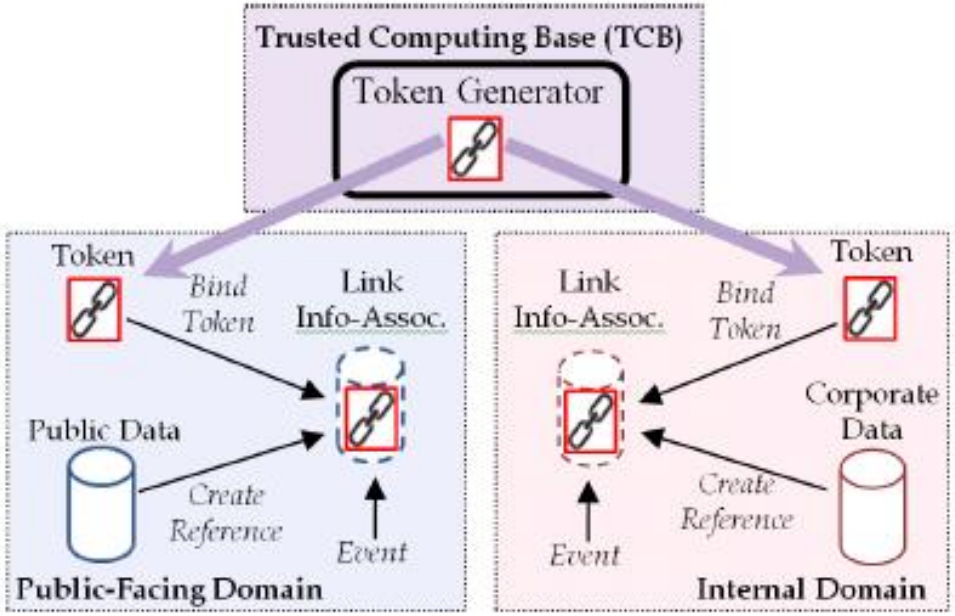
Coalition Domain



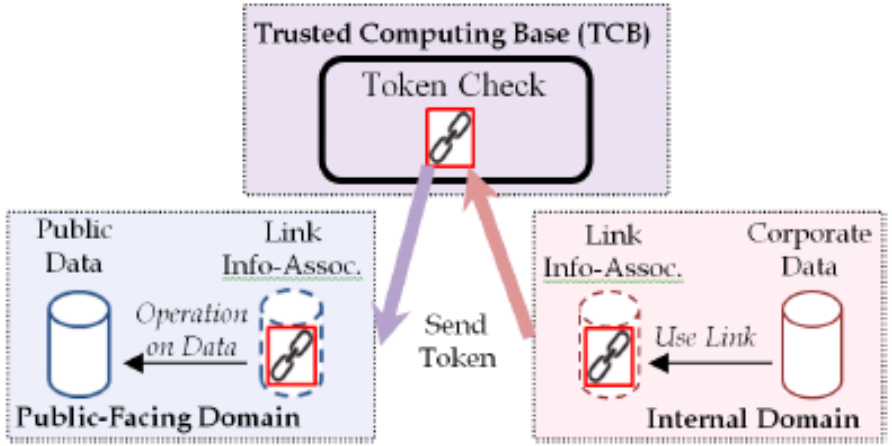
Mission Domain

Video merged from all domains

Link Information Association

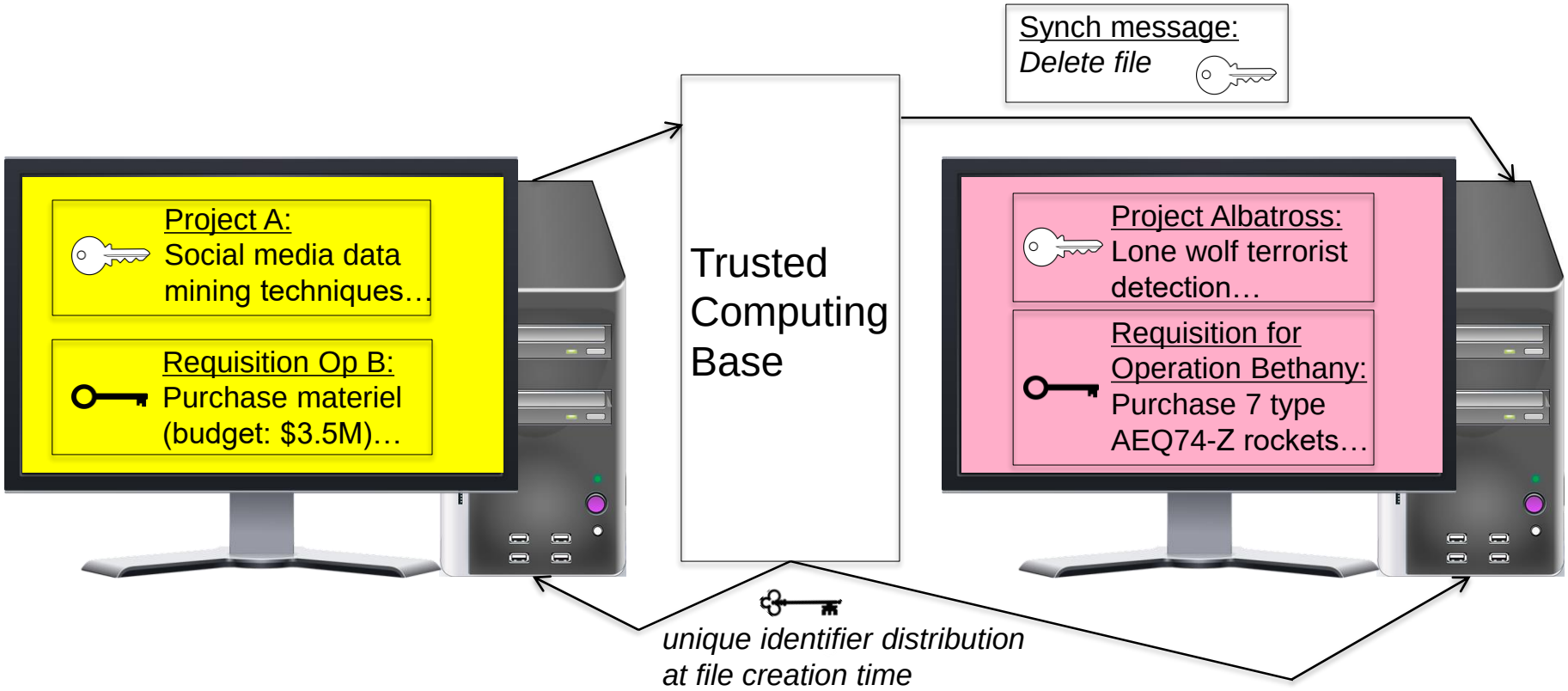


Link information association creation

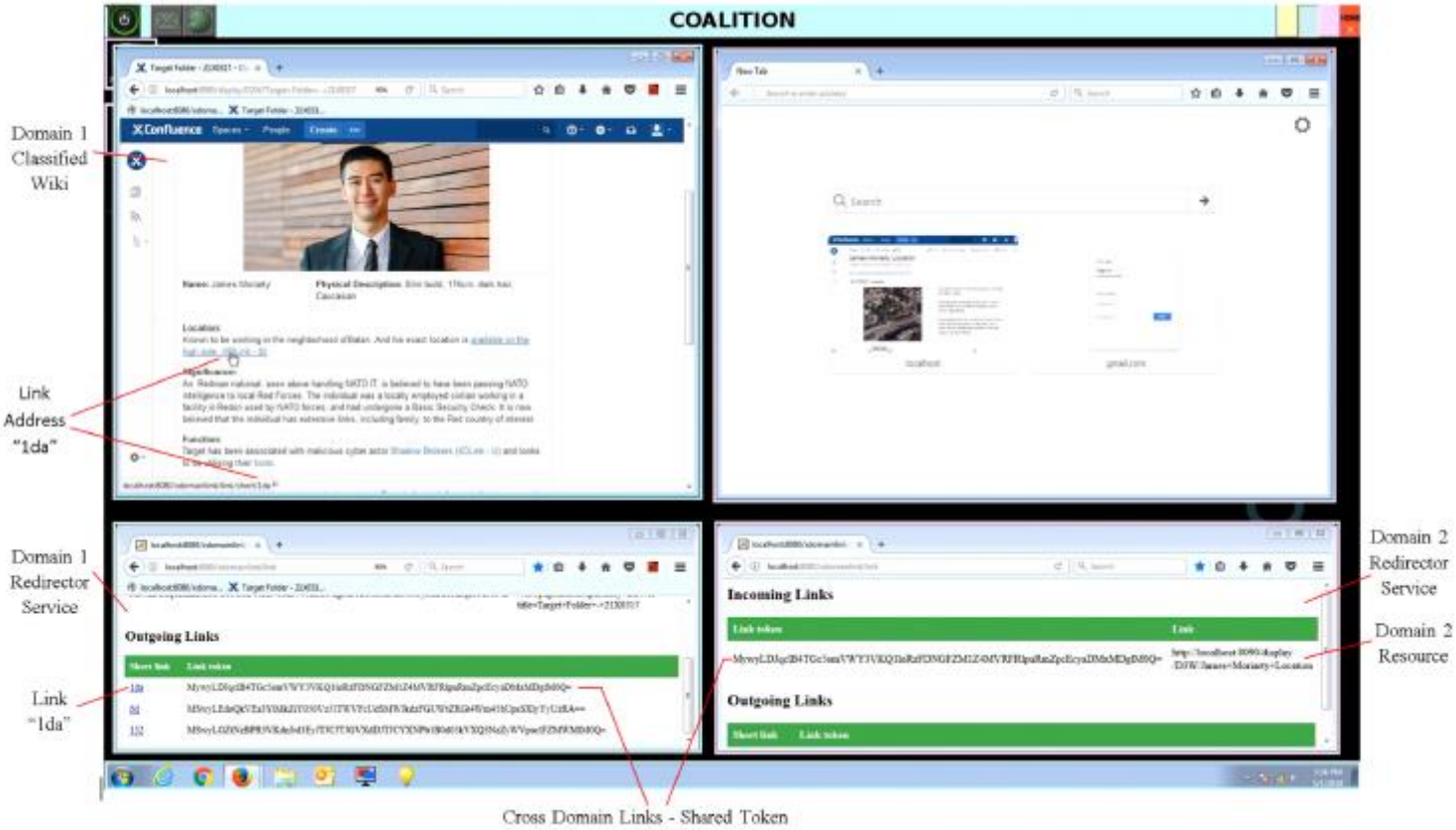


Link information association usage

Link Example: Cross Domain Files



Link Example: Cross Domain Hyperlinks



Conclusion

- Information associations are a powerful tool for providing cross domain utility on segregated networks, with only limited cross domain data transfers required.
- Our multi-domain graphical interface library and military map application demonstrates the value of visual information associations.
- Our cross domain links implementation shows the utility of link information associations.