

Addressing the Challenges of Community Orientated Networks

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Overview



- (Re)introduction to Wray
- Security in Communities
- Network Management in Communities
- Situation in Wray
- Challenges
- Addressing the Challenges

(Re)introduction to Wray





(Re)introduction to Wray

- Wireless Mesh Network in a rural village
- Community driven project started in 2003 due to the lack of available broadband access
- Infrastructure hosted in homes and communal areas
- Supports recreational and business use

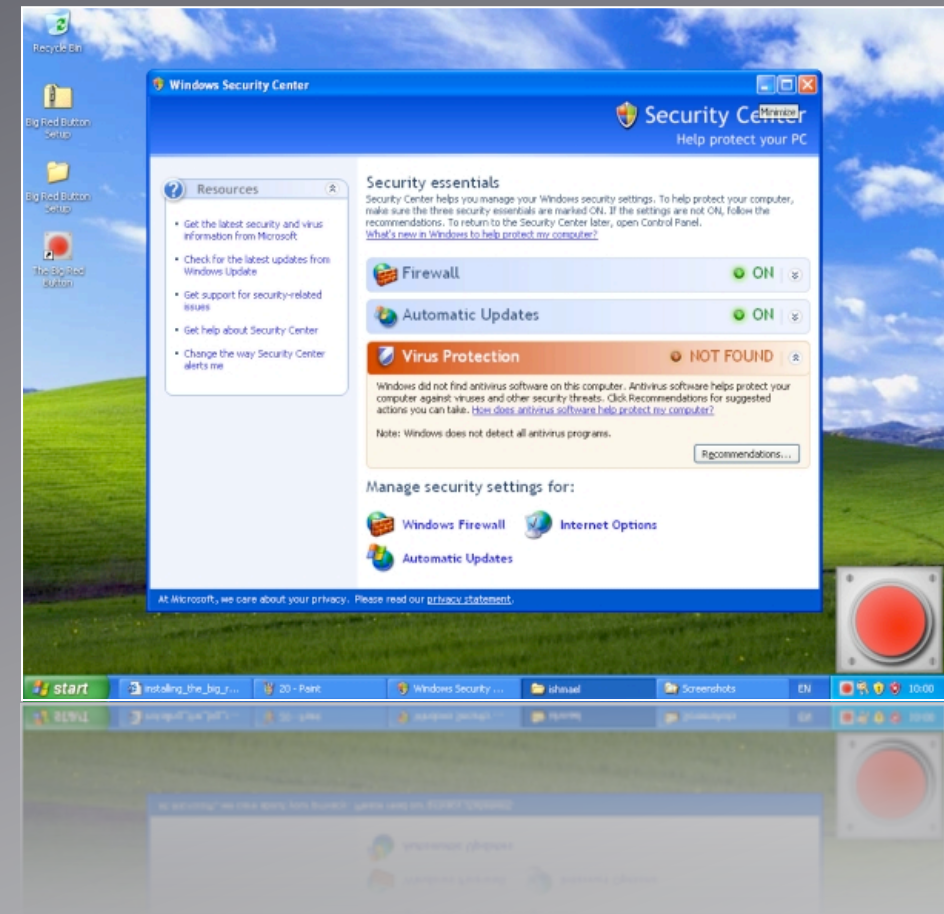
Johnathan Ishmael, Sara Bury, Dimitrios Pezaros, Nicholas J. P. Race,
“Deploying Rural Community Wireless Mesh Networks”, *IEEE Internet Computing*, vol. 12, no. 4, pp 22-29, Jul/Aug 2008



Security in Communities

The Big Red Button!

- People submitted security concerns from their own PCs
- Discovered that quite often, people didn't want external help
- Many turned to fellow network users for advice instead



Sara Bury, Johnathan Ishmael, Nicholas J. P. Race, Paul Smith, Mark Rouncefield.
“Towards an Understanding of Security Concerns Within Communities”. In:
Proceedings of the 2008 IEEE International Conference on Wireless and Mobile Computing, Networking and Communication (WIMOB 2008), October 12th-14th 2008.

Network Management in Communities



What effect can social aspects have on network management?

- People are involved in every stage of network operation
- Leaders / followers, operators / users
- Relationships between different people

Different kinds of user community will exhibit different issues

Community Network

Operated as a shared resource rather than for commercial or financial gain



Situation in Wray

- Day to day operation carried out by a small minority
- Policies on the network evolved based on observed use
- Strong desire not to police these automatically
 - Wray is not a commercial ISP...
- Enforcement through user education
- Novel approaches to standard network management tasks

Challenges



Choosing Policy

Educating Users

Enforcing Rules

Infrastructure
Hosting

Levels of
Responsibility

Comprehension
of Rules

Addressing the Challenges

As computer scientists... what can we do?

... maybe a technical implementation might help.

- Room for improved methods of communication
 - Awareness of network faults
 - Sharing concerns, contributing advice
- Helping users understand what policies mean
- Improving the network management process
- Much future work...

Thank you :)

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Questions?