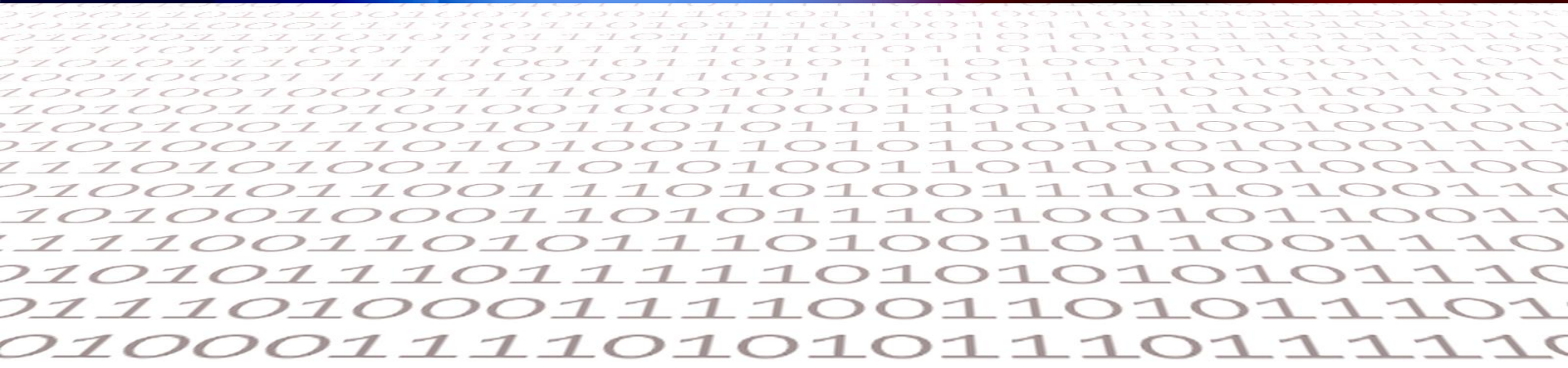


Kids and the Internet - Parental Control made easy

Christian Donner



Setting the bar

- What is your level of experience with computers and the internet?
- What are you expecting to take away from this class?

Types of threats, and possible responses

- Overuse – no time limit, or time limit being ignored
 - ➔ **Time Control**
 - Time control is a separate problem that is relatively easy to solve
- Content – violence, porn, ...
- Malware – viruses, back doors, and trojans
- Sexual predators on the web – chat rooms, Myspace, ...
 - ➔ **Web Filter**
 - Web filters are try to prevent access to potentially harmful web addresses.

Goals of technology use in parental control

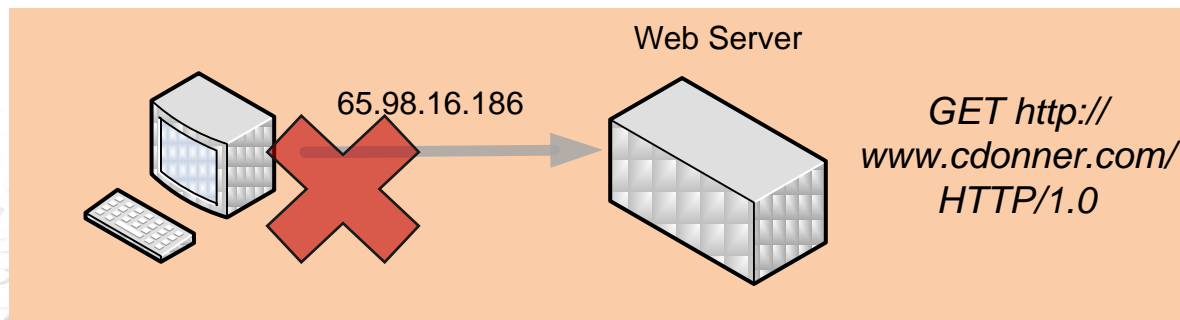
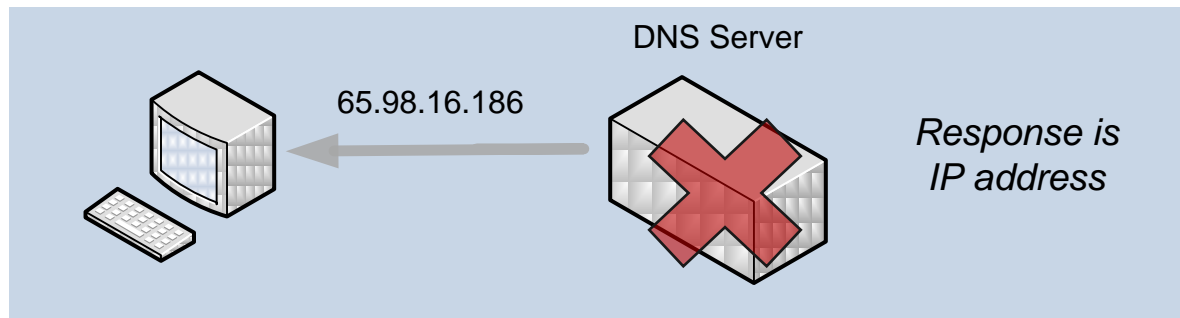
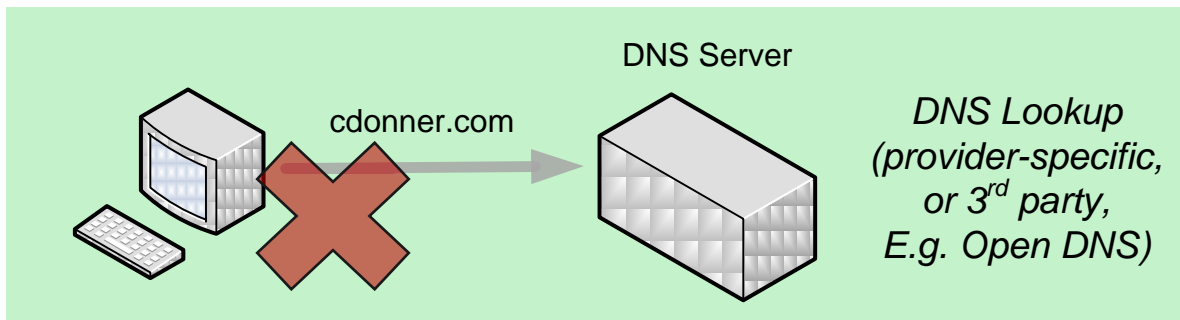
Support, not replace traditional controls, such as

- Providing detailed verbal instructions
- Setting time limits (can be enforced with technology)
- Making computer use an open activity by not allowing a computer in the child's bedroom
- Encouraging self-control (by gradually switching older children from controlling to monitoring)

Technology primer – How the web works

- IP Address – unique identifier for every station connected to the web
- Domain – optional, the portion of a Universal Resource Locator (URL) that identifies a web page
- DNS – Domain Name System, a directory that maps a domain to an IP address
- Access control only works in conjunction with these technologies

Domain Name Resolution (DNS)



Important concepts

- White-listing
 - Defining allowed sites
- Black-listing
 - Defining blocked sites
- Proxy server
 - A separate server can analyze and filter traffic in real-time
 - More detailed control and monitoring possible

Different age groups have different needs

- Determined by
 - Ability to read and type
 - Ability and desire to use a computer alone
 - Curiosity and desire to browse new sites
 - Peer pressure and coolness factor

First steps with parent – 5 to 7 years



- Computer controlled by a parent
- Common space (kitchen, etc)
- Parent at computer or nearby
- Parent selects online/offline applications
- Few hand-picked applications or web sites
- Parental control: not required

Learning alone – 7 to 10 years



- Computer not always controlled by parent
- Child may own a computer
- Computer use in common space may not be enforceable
- Few web sites (10-50) and few applications, hand-picked by parent
- Parental control:
White-listing is ok

Autonomous use – 10 to 15 years



- Computer not controlled by parent
- Child has own computer
- Computer use without parents present
- Number of sites/applications not limited
- Parental control: Black-listing
- Child will find many ways to circumvent the filters (mobile phone, friend, open wireless networks, etc)

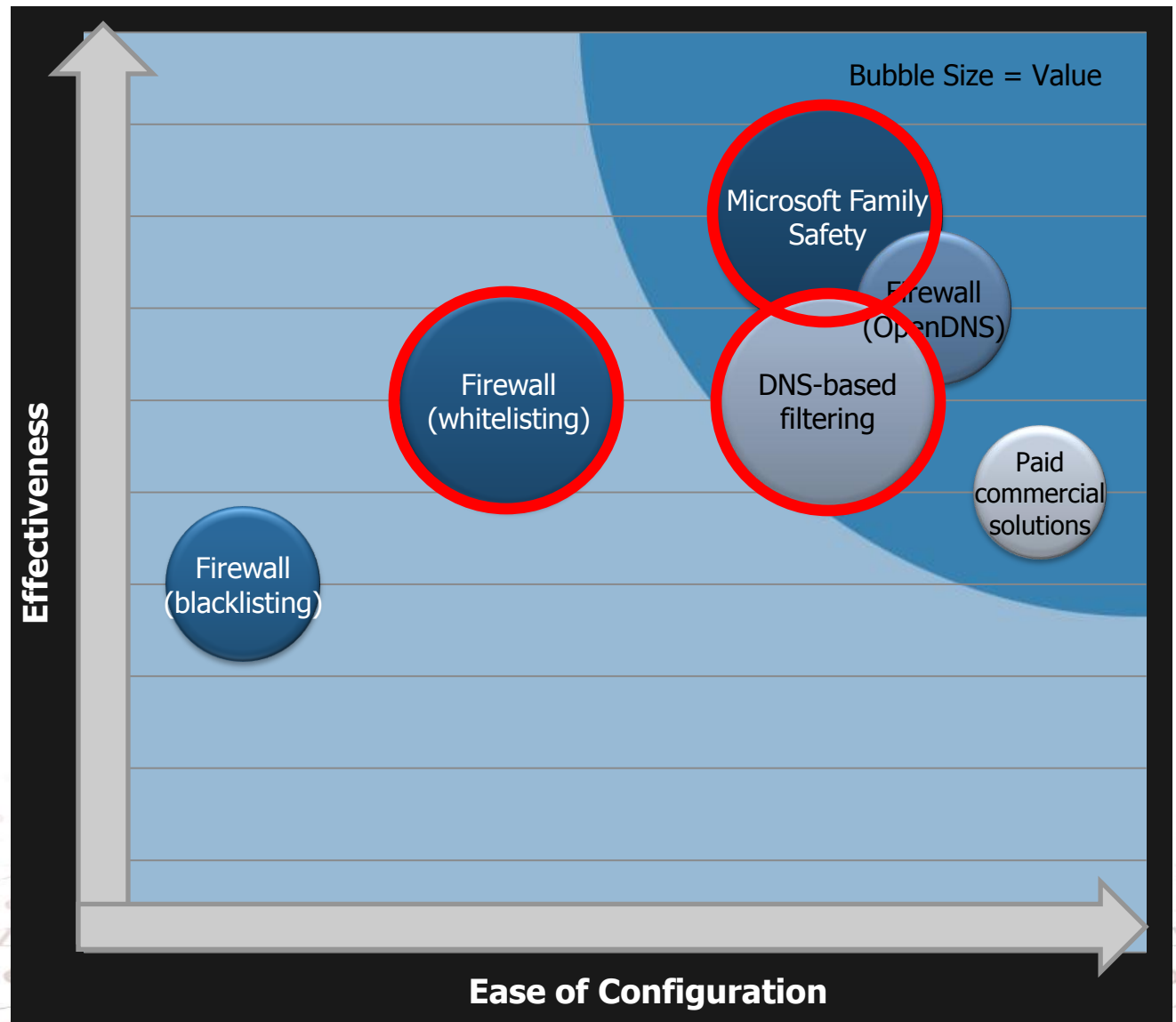
Internet Content Rating (ICRA)

- Self-regulation effort of the porn industry to avoid (US) government regulation
- Web pages are tagged with content rating codes
- Browsers can use rating to interpret and filter content
- Used by commercial tool vendors, e.g.
 - <http://www.cybersitter.com>
 - <http://www.cyberpatrol.com>
 - <http://www.netnanny.com>
- Effectiveness and value questionable
- May not have much of a future
 - E.g. go to Hustler.com, click on *Parental Blocking* in the page footer: several of the subsequent links are broken

Monitoring

- Respect your child's privacy
- Build an environment of trust
- Use monitoring only as a last resort, if there is other evidence of abuse
- Very computer-literate children will find software that is installed on their computer to track their activities
- Network-based monitoring (router, firewall, other computer) are less intrusive

A (subjective) comparison of tools



3 Hands-on setup examples

- Firewall with white-listing
 - ActionTec (Verizon Fios Router)
 - Blunt tool, but readily available
- OpenDNS
 - Free managed DNS service
 - Simple and effective
- Microsoft Windows Live Family Safety
 - Comprehensive solution with Windows-integration
 - Best for computers shared by family members with different security profiles

Verizon FIOS Router (ActionTec)

Create Schedule: [? What's This](#)

Days:

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

Times:

Rule will be active at the scheduled time.
 Rule will be inactive at the scheduled time.

Start time: 07 : 00 AM/ PM

End time: 09 : 00 AM/ PM

Create Rule Name: [? What's This](#)

Create your Rule Name and Description

Rule Name:

Description:

Step 3. Click the Apply button to save and apply your settings.

- White-listing and/or time control
- White-listing is suitable for younger children (up to 10 to 12 years, depending on computer proficiency)

OpenDNS

- Free service
- User-managed “white-listing” via 3rd party DNS
- Very simple setup and configuration
- Ad-funded
- Privacy concerns
- DNS-based solutions can be circumvented by using the IP address directly, but
 - Many larger sites redirect the browser, triggering subsequent DNS look-ups
 - Many smaller sites require host headers; HTTP requests with only an IP address are rejected
- Some routers (i.e. Netgear WNR2000) work with OpenDNS and make it more difficult to bypass the protection

OpenDNS configuration

OpenDNS.com | Dashboard | Community | cdonner (Sign out) | Your IP: 173.48.247.24

OpenDNS / dashboard

MY ACCOUNT | SETTINGS | STATS | SHORTCUTS | SUPPORT | TELL A FRIEND

Manage Settings for: 173.48.247.24/32 (Home)

Content Filtering

- Customization
- Stats and Logs
- Advanced Settings

Users can contact you

Your users can contact you directly from the block page if they have questions. It'll show up as an email in your inbox.

Note about DNS forwarding

If you are forwarding requests to OpenDNS, domain blocking may not work properly if the domain's address is in your forwarder's cache.

Check a domain

[Find out](#) whether it would be blocked, and why.

Support Articles

- [Blocked domain still available](#)
- [Domains that may not be](#)

Content Filtering

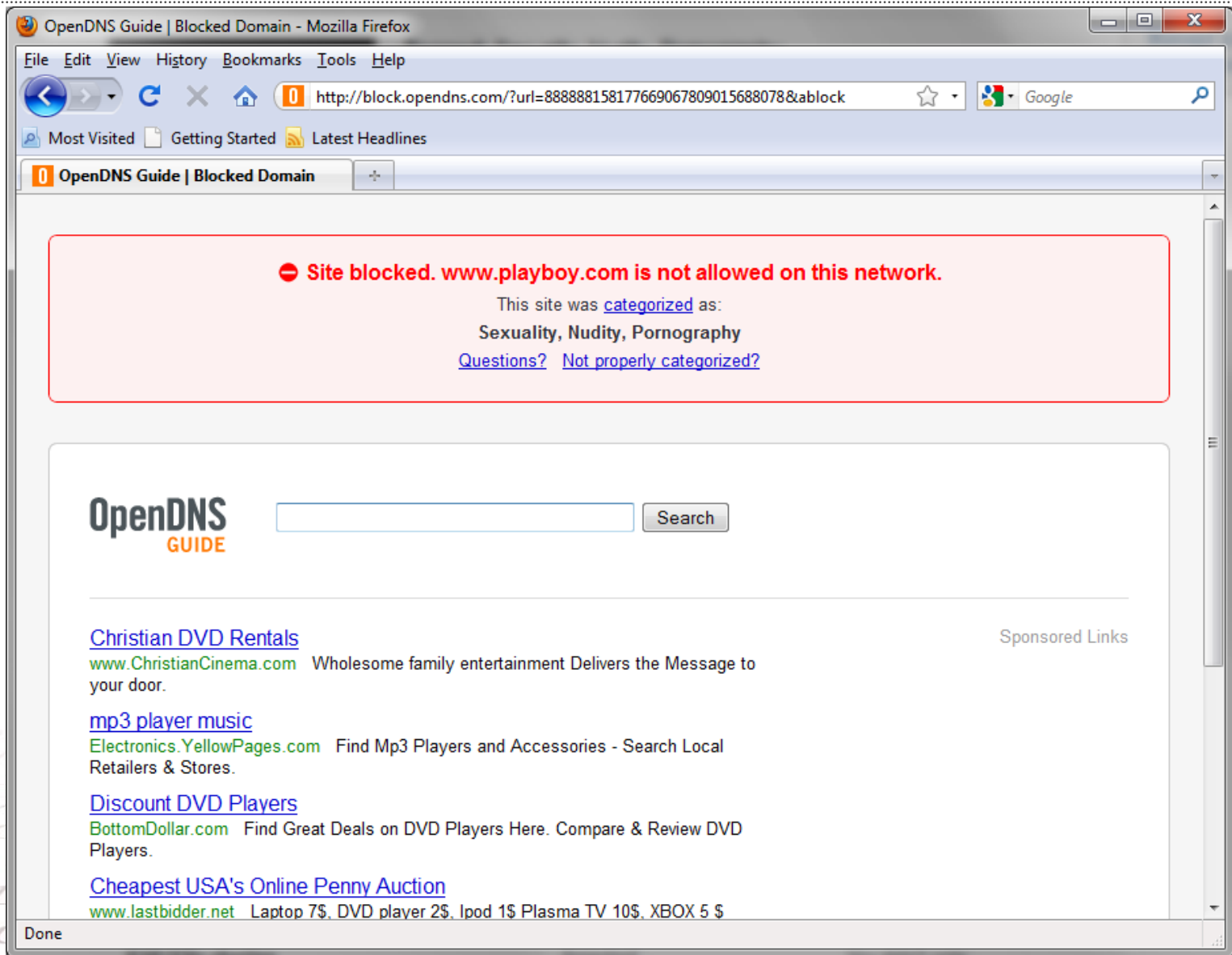
Choose your filtering level

- High** Protects against all adult-related sites, illegal activity, social networking sites, video sharing sites, and general time-wasters. 27 categories in this group - [View](#) - [Customize](#)
- Moderate** Protects against all adult-related sites and illegal activity. 14 categories in this group - [View](#) - [Customize](#)
- Low** Protects against pornography and phishing. 5 categories in this group - [View](#) - [Customize](#)
- Minimal** Protects against phishing attacks. 1 category in this group - [View](#) - [Customize](#)
- None** Nothing blocked.
- Custom** Choose the categories you want to block.

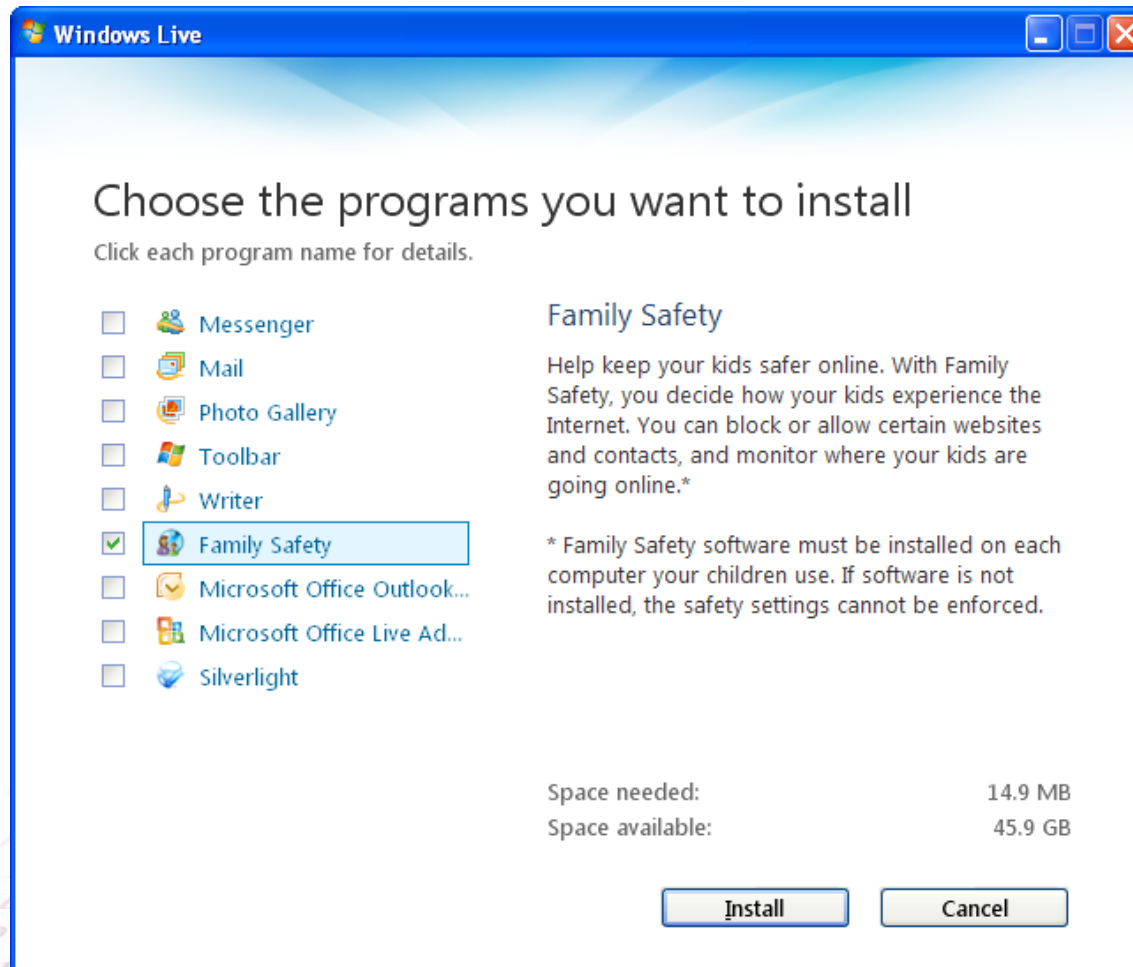
[APPLY](#)

Manage individual domains

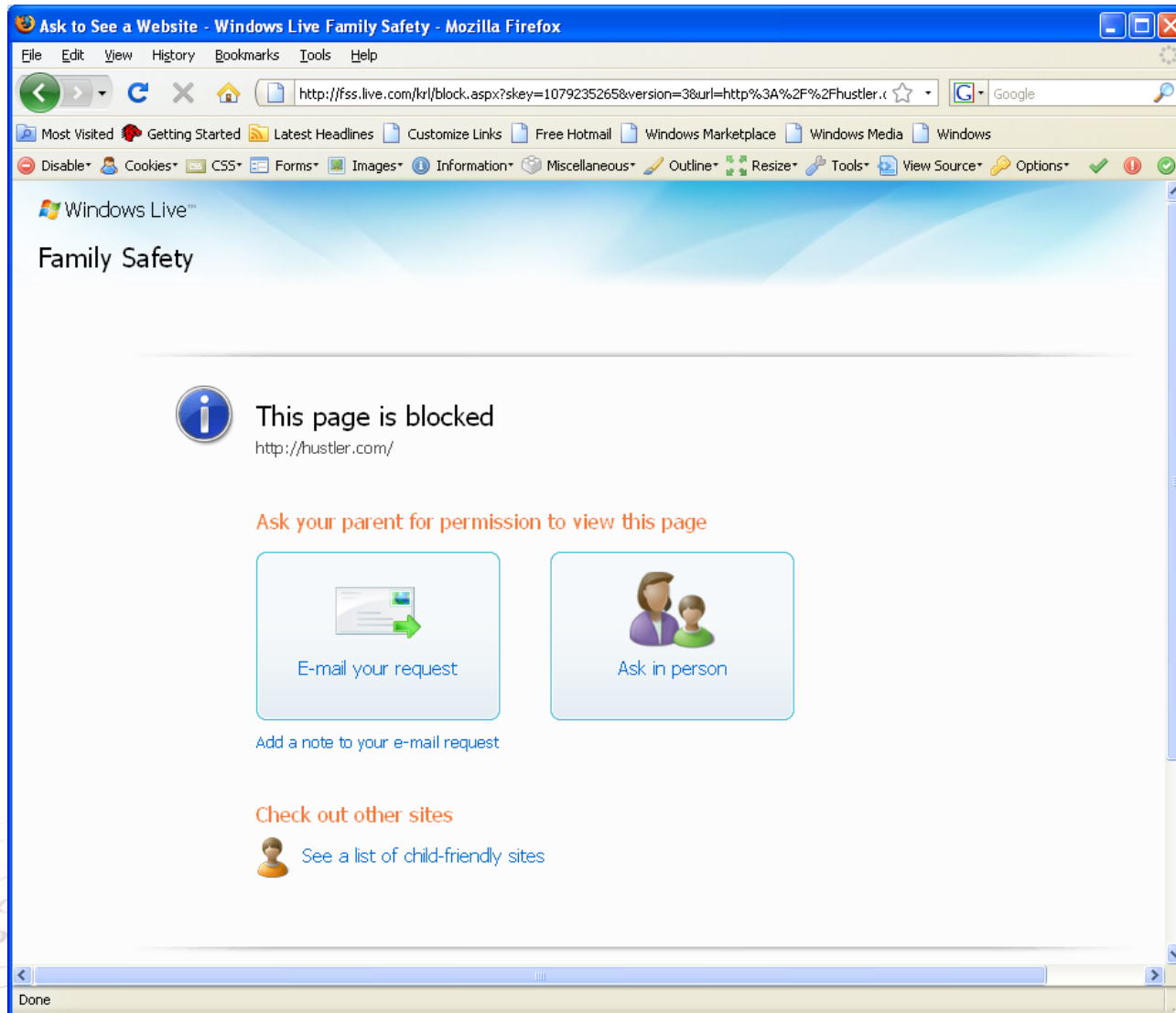
OpenDNS blocked page



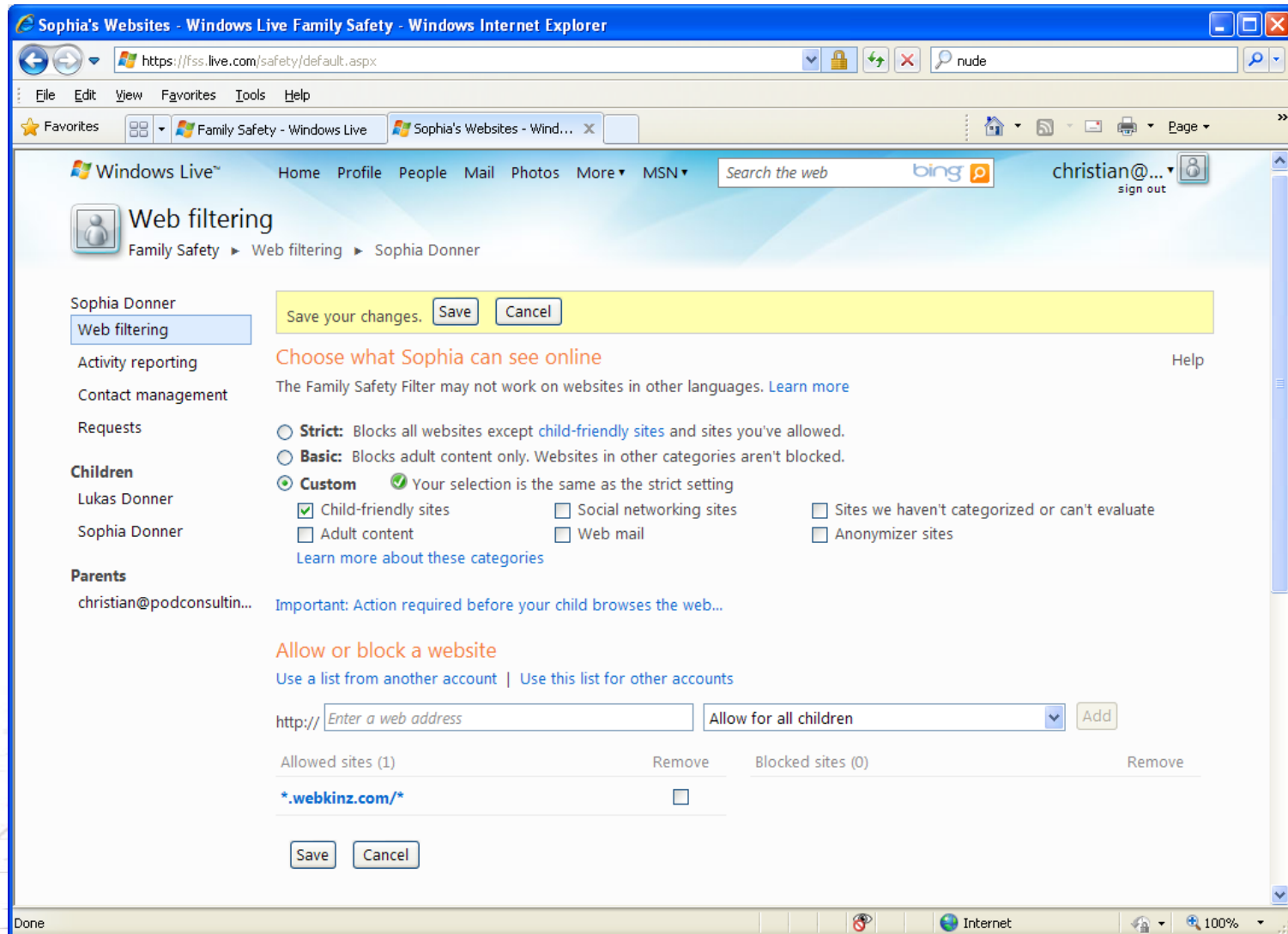
Windows Live Family Safety



How does it work?



Centralized Fine-Grained Control



Windows Live Family Safety

- Pros
 - Better protection than URL filters
 - IP addresses are also blocked, not just the URL
 - Searches are blocked, even on Youtube (95% reliable)
 - Email requests allow remote approval, while you are at work for instance
 - Browser-independent
 - Reports online
- Cons
 - Setup is complicated
 - Requires Windows Live ID and online configuration
 - Children need a Windows Live ID as well
 - A lot of information is being disclosed to Microsoft
 - Windows and Playstation only
 - Lots of false positives annoy parents

Limitations

- Managed black-lists, including commercial solutions and OpenDNS, depend on employee editors or crowd-sourcing for content labeling
 - There is always a time lag between the appearance of bad content and when it is blacklisted
- Youths may be capable of setting up VPN tunnels or connect remotely to each other computers, bypassing all of the methods discussed here for filtering and monitoring.
- I.e. parental control has technical and systemic limits

Selected links

- Windows Live Family Safety Blogs
 - <http://familysafety.spaces.live.com/>
- OpenDNS
 - <http://www.opendns.com/solutions/homenetwork/>
- Netgear WNR2000 (\$80)
 - <http://www.amazon.com/gp/product/B001AZP8EW>
- FOSI
 - <http://www.fosi.org/icra/>

Thank you!

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