Internet Filtering

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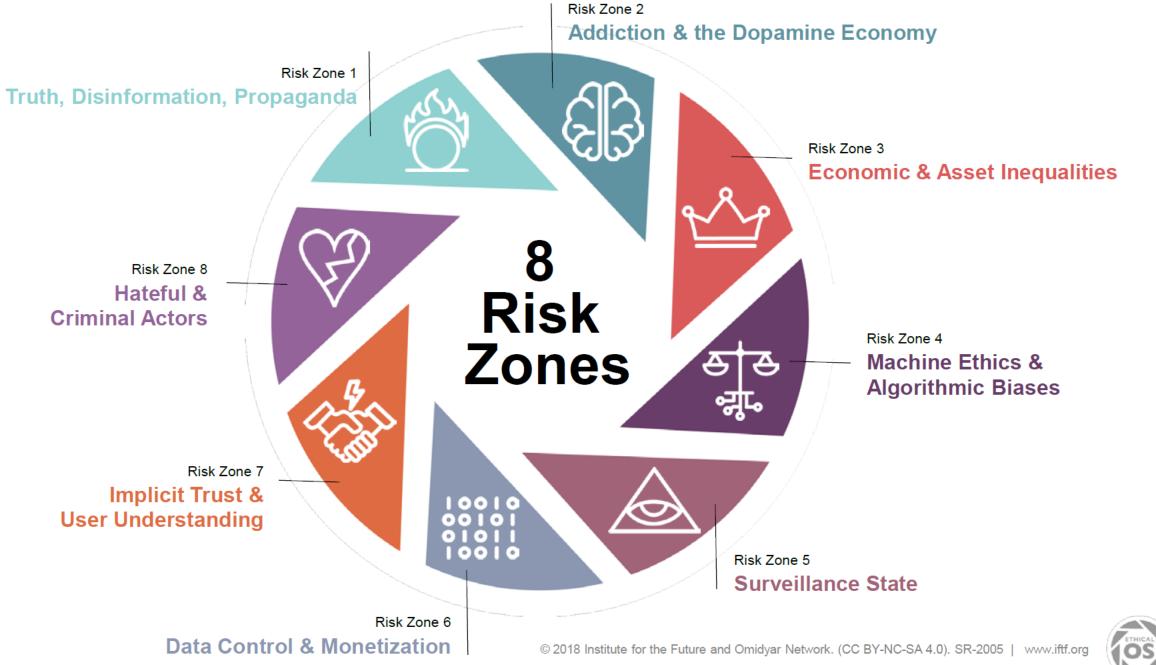
What is the problem?

Filtering of objectionable content

One of the biggest problems the world faces

Dark side of the Internet

 Human Rights Considerations of Internet Filtering https://datatracker.ietf.org/doc/draft-elkins-hrpc-ifilter/



How ISIS became the world's deadliest startup

- ISIS uses technology better than most tech start-ups. Ghost Security Group, a counterterrorism organization, has noted in the past that ISIS utilizes almost every social app imaginable to communicate and share its propaganda, including mainstays like Twitter and Facebook; encrypted chat apps such as Telegram, Surespot, and Threema; and messaging platforms including Kik and WhatsApp. The terror group shares videos of beheadings on YouTube and even more gruesome clips on LiveLeak.
- They use the remarkably secure Apple iMessage to communicate. They preach to their disciples across the world using Internet radio stations. When a terror attack takes place, they use Twitter to claim responsibility and their followers subsequently cheer with favorites and retweets. Perhaps most frighteningly, the group's dominance as a modern-day terror network is visible through how quickly their social-media dominance is accelerating.

Network Service Header Encoding (RFC 8300)

Transport Base Header **Encapsulation** Service Path **NSH** Header Extension Header Extension Payload Packet Header Extension Header

MD Type | Next Protocol **TTL** Ver Length

- Version (0x0)
- TTL counts down from 63
- Length (in long words) of whole NSH
- Meta Data type (see later slide)
- Next Protocol (Protocol type of next header)
 - IPv4/IPv6/MPLS/Ethernet etc.

Service Path Identifier (SPI)

Service Index

- SPI indicates the specific SFP in use
- SI indicates which SF to process next
- One or more Extension Headers
- Used principally (only?) to carry Meta Data
 - See later slide

Meta Data

- What is Meta Data?
 - Information about the packet that is carried along with the packet
 - May be derived from the packet (e.g., hash or DPI)
 - May be generated by an SF (e.g., caller ID or content type)
 - Used by SFs to help execute their functions on the packet
 - Generally, Meta Data *could* be regenerated by an SF, but would be wasteful of processing and configuration
- Where do you draw the line?
 - A Classifier works on a packet to select the SFP
 - That work is carried in the NSH as the SPI
 - The SPI is not considered to be Meta Data

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