Content blocking and filtering: A Technical approach to solve Socio/Political Issue?

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Internet and Content Filtering

Internet is now become the most diverse, powerful and fastest way of communication, one of the best tools to create public opinion rightly or wrongly. So governments are keen to have a control over it.
Motivation for Filtering@National level

a. Child Online Protection
b. Religious Believe
c. Cultural Taste
d. Political Motivation
e. Fake News
## Where Does Content Blocking Occurs?

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>National level</td>
<td>When mandated by government policy, all traffic entering or leaving a country may be subject to content blocking. Though requires tight control over all cross-border interconnection</td>
</tr>
<tr>
<td>Carrier and ISP level</td>
<td>Individual Carrier or ISP may install blocking devices or tools</td>
</tr>
<tr>
<td>Local Network level</td>
<td>In corporate, school or campus network may have their own policy to block content</td>
</tr>
<tr>
<td>End User level</td>
<td>Mostly by end user software or by home access gateway mostly for security and privacy reason</td>
</tr>
<tr>
<td>Country</td>
<td>Count</td>
</tr>
<tr>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td>Turkey</td>
<td>3,832</td>
</tr>
<tr>
<td>Mexico</td>
<td>2,280</td>
</tr>
<tr>
<td>India</td>
<td>1,914</td>
</tr>
<tr>
<td>Germany</td>
<td>1,893</td>
</tr>
<tr>
<td>Brazil</td>
<td>1,137</td>
</tr>
<tr>
<td>Italy</td>
<td>535</td>
</tr>
<tr>
<td>Israel</td>
<td>487</td>
</tr>
<tr>
<td>France</td>
<td>354</td>
</tr>
<tr>
<td>Pakistan</td>
<td>301</td>
</tr>
</tbody>
</table>

Source: https://transparency.facebook.com/
Content Blocking Request to Google

Source: https://transparencyreport.google.com
Types of Content Filtering

a. Prefix Filtering
b. URL/URI Filtering
c. DPI
d. Starvation of Bandwidth
e. Destination IP Specific QoS / QoE
f. DNS based Filtering
g. Shutdown / Denial of Access
Surveillance and Mass Surveillance (DPI)

Usually by the Govt./LEA/Intelligence Organization

a. Mostly by Man in the Middle Attack
b. Though Losing effectiveness due to harder encryption
c. Direct violation of Privacy and Human rights
d. Sometimes operators are pressurized to implement eventually ends with shutdown
e. Suppression of Freedom of Speech
Content Filtering and blocking at National level

Another agency is preparing...
### Content Blocking Request Since February’18:BD

<table>
<thead>
<tr>
<th>Category</th>
<th>Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Content</td>
<td>254</td>
</tr>
<tr>
<td>Gambling Sites</td>
<td>769</td>
</tr>
<tr>
<td>Pornographic Content</td>
<td>3056</td>
</tr>
<tr>
<td>Others</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4129</strong></td>
</tr>
</tbody>
</table>
Countries Shutting down the Internet the most

Number of internet shutdowns by country (Jan 2016–May 2018)*

- **India**: 154
- **Pakistan**: 19
- **Iraq**: 8
- **Syria**: 8
- **Turkey**: 7
- **D.R. Congo**: 5
- **Ethiopia**: 5
- **Iran**: 4
- **Chad**: 3
- **Egypt**: 3

*An internet shutdown occurs when someone (usually the government) intentionally disrupts the internet or mobile apps to control what people say or do.

Technical and Operational Challenges

1. Biggest Challenge is to get a desired result without breaking the Internet.
2. Its becoming a huge pressure to the ISPs to comply with the Government order to block specific content.
3. IP Address, App ID, URL, etc. based Blocking blocking the right to use internet / content wholistically in respect to that resource, which is not fair.
4. Man-In-The-Middle attacks actually breaches the data security, incurs the identity theft and it is opening up personal data and user right to attacker. This method is eventually illegal.
5. Blocking a specific content to a specific user base, can easily turned out to be, Blocking the entire service to a whole nation.
Real Life Challenges

There are fake news, terrorism, defamation, financial crime and many other anti state/anti social activities. Which influencing government to have a strong control over it, resulting Content Blocking and filtering.

Content Blocking and Filtering put Privacy and Freedom of speech in danger. Open free Internet is no longer open. Limiting voice of the unheard.
Real Life Challenges (cont.)

Technologies evolving every moment.

Can we solve these issues by filtering or Blocking? 
Or

We should look for a social and political solution?
Before we end.....

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<table>
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<tr>
<th>사이트분야</th>
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<th>전화번호</th>
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<tr>
<td>성매매·음란</td>
<td>방송통신심의위원회</td>
<td>(02)3219-5155</td>
</tr>
<tr>
<td></td>
<td>사이버경찰청</td>
<td>1566 - 0112</td>
</tr>
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