

# Total Internet Security of a Country

**MENOG-16**

**March 24 2016**

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## Recap:

The Internet has  $\pm 60,000$  autonomous networks, that are interconnected.

Not all of them are friendly...

## **.ccTLD**

Managed within a country

At least one server housed within your borders

Under local jurisdiction

DNSSEC signed

Local ISPs use DNSSEC validation ?

# DNS & Roots

Locally hosted copy of ccTLD

Locally hosted copy of `_other_` TLDs ?

Locally hosted DNS Roots?

# IXP

Good: At least one IXP per country.

Better: At least one IXP per major city/  
economic centre

# Datacentres

Competing carrier neutral data centres

## Competitive local fibre

This might not seem obvious at first, but natural user predilection is to choose the fastest path to a resource.

# CERT

Co-ordinating Internet security response, and liaise between government, and industry.

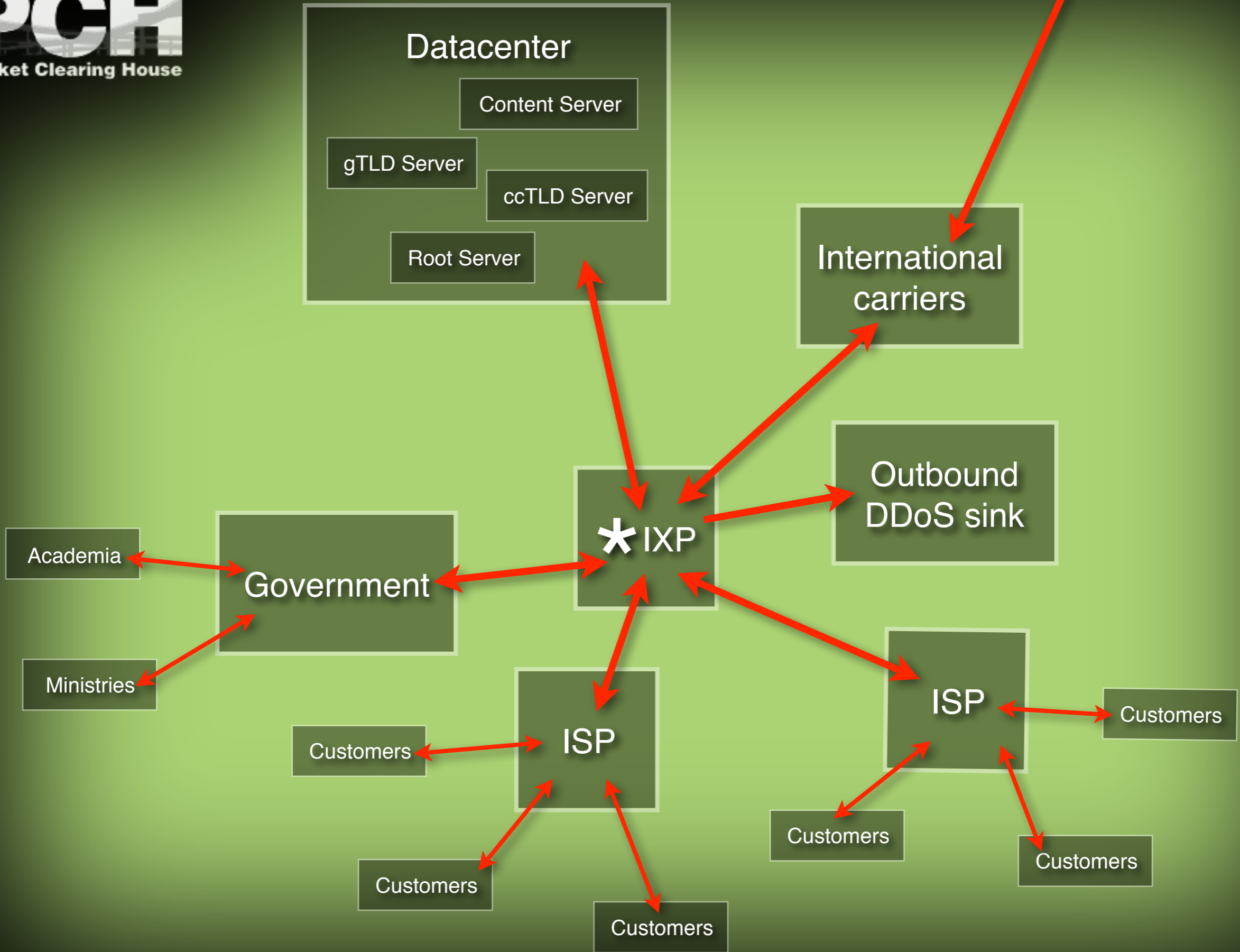


# Critical Infrastructure Checklist

- ✓ Domestic IXP. One per major city eventually.
- ✓ Your own ccTLD nameservers at domestic IXPs and major IXPs on the other side of your international circuits.
- ✓ Root nameserver domestically. Multiple when possible.
- ✓ DNSSEC sign your national ccTLD.
- ✓ Use DANE to bootstrap a national Certificate Authority.
- ✓ Neighbors' ccTLDs and other TLD nameservers of interest domestically, at your IXP, connected to your ISPs.
- ✓ Datacenters adjacent to your IXP.
- ✓ DDoS sinks on both sides of your international circuits.
- ✓ Redundant fiber paths both domestically and to major IXPs bordering the region.

# Policy & Regulatory Checklist

- ✓ Avoid over-spending and gold-plating.
- ✓ Encourage international content to mirror at your IXP.
- ✓ Maintain a competitive domestic marketplace in all services. Regulate only constrained common goods. Use class licenses rather than individual licenses by default.
- ✓ Encourage your ISPs to do business in neighboring countries, and welcome their ISPs to do business in yours. Together you'll boot-strap into larger markets.
- ✓ Adopt or ratify the Council of Europe Convention on Cybercrime.
- ✓ Institute cybersecurity programs at all levels of your educational system.
- ✓ Be aware of and participate in Internet governance, don't let others speak in your stead, and don't get used as a disposable pawn in other people's fights.



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[www.pch.net/documents/papers/total-security](http://www.pch.net/documents/papers/total-security)