# OSY.SSI[2015][6]

Topology

# Topology : discourse on places

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Theorem ("Jordan", 1887)

$f : S^1 \hookrightarrow \mathbb{R}^2 \Rightarrow \mathbb{R}^2 = A \cup B \cup C, A \cap B = \emptyset$, *$A$ and $B$ open and* $\partial A = \partial B = C = f(S^1)$.

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Proof.

Using Bouwer's fixed-point theorem, see Maehara 1984. □

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- **Zones** and their **boundaries**

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- **Zones** and their **boundaries**
- **Neighbourhoods** and the resulting **network**

# What constitutes a “boundary”?

## Beyond hack-and-slash

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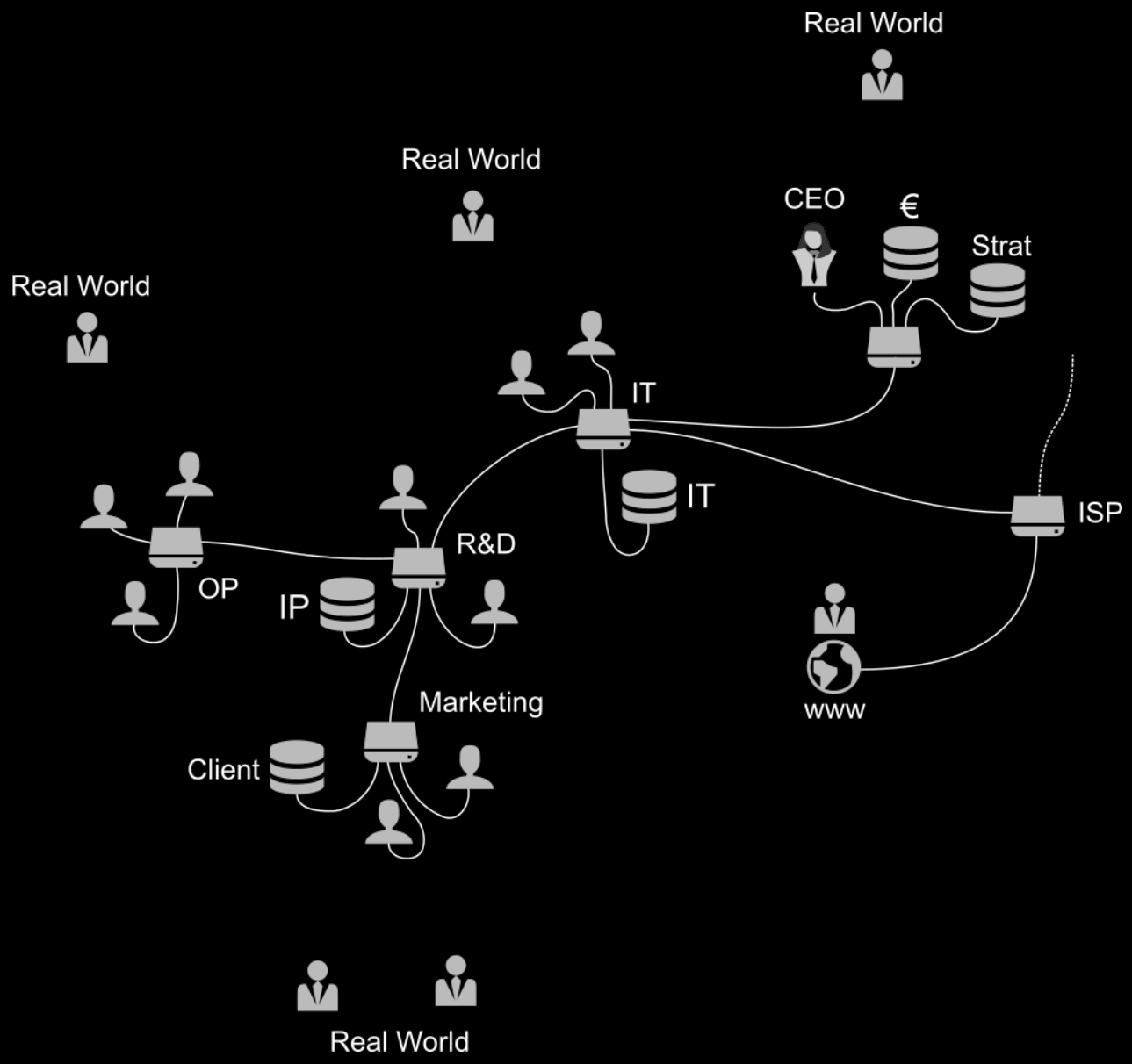
Bonus: keeps your people from emigrating.
Hypotheses, weaknesses? Limitations?

# An example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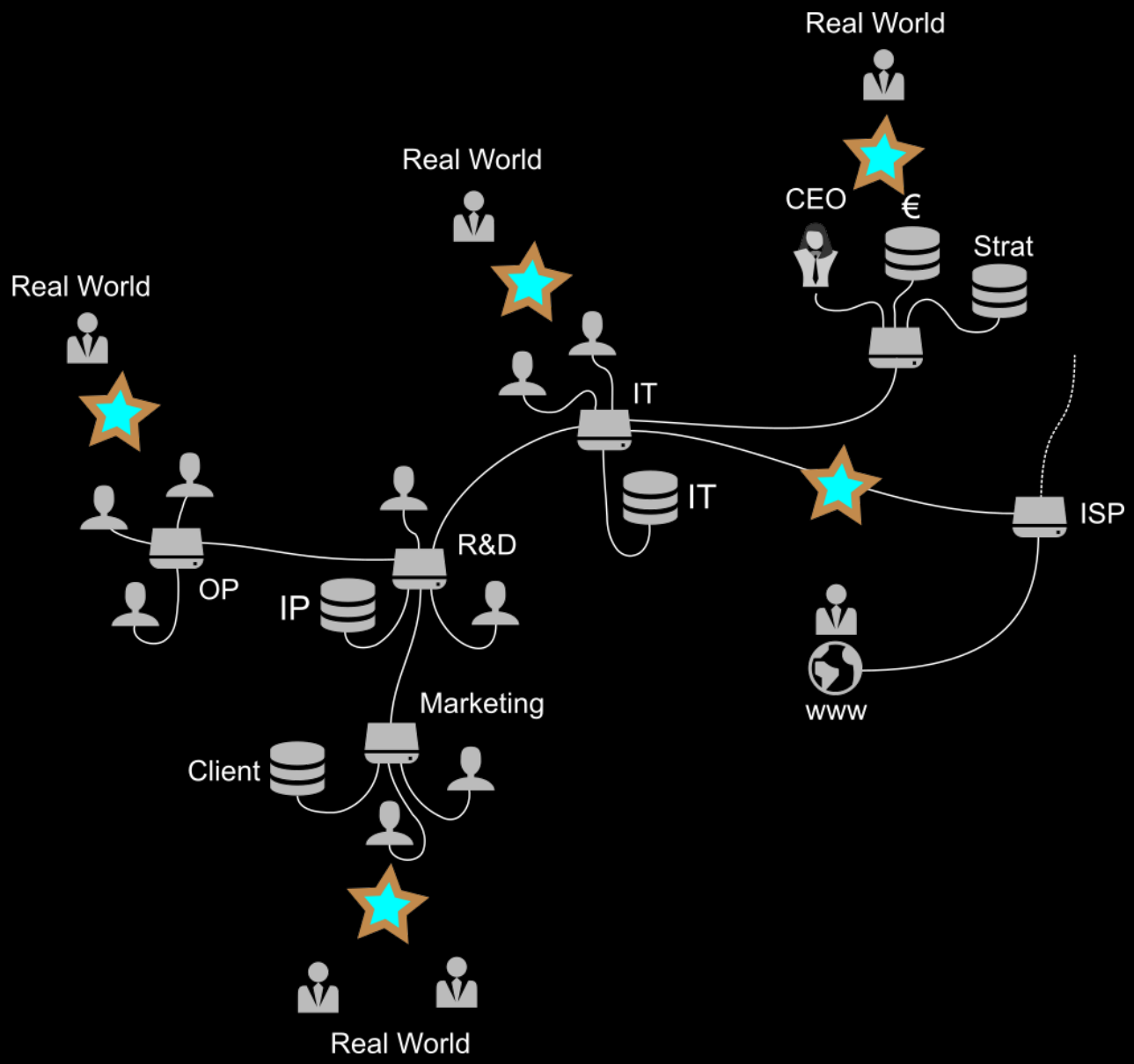
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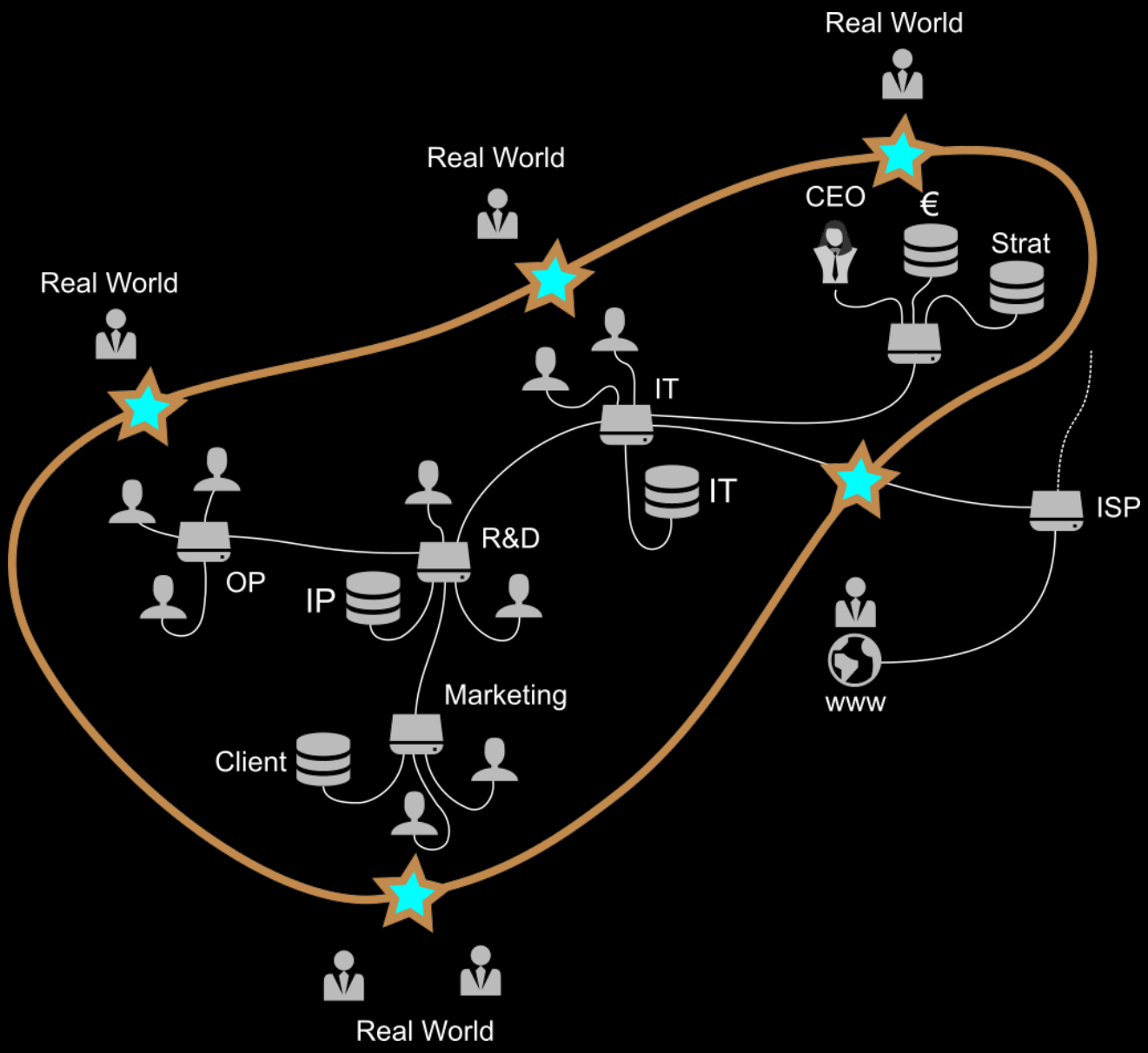
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Once in a **trusted zone** she can do as she wishes.

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Sometimes, two dimensions aren't enough (London, WWII).

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Same problem: attackers can simply target the most interesting one.

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**Hint:** follow the abstraction layers from assets all the way up to turtles!

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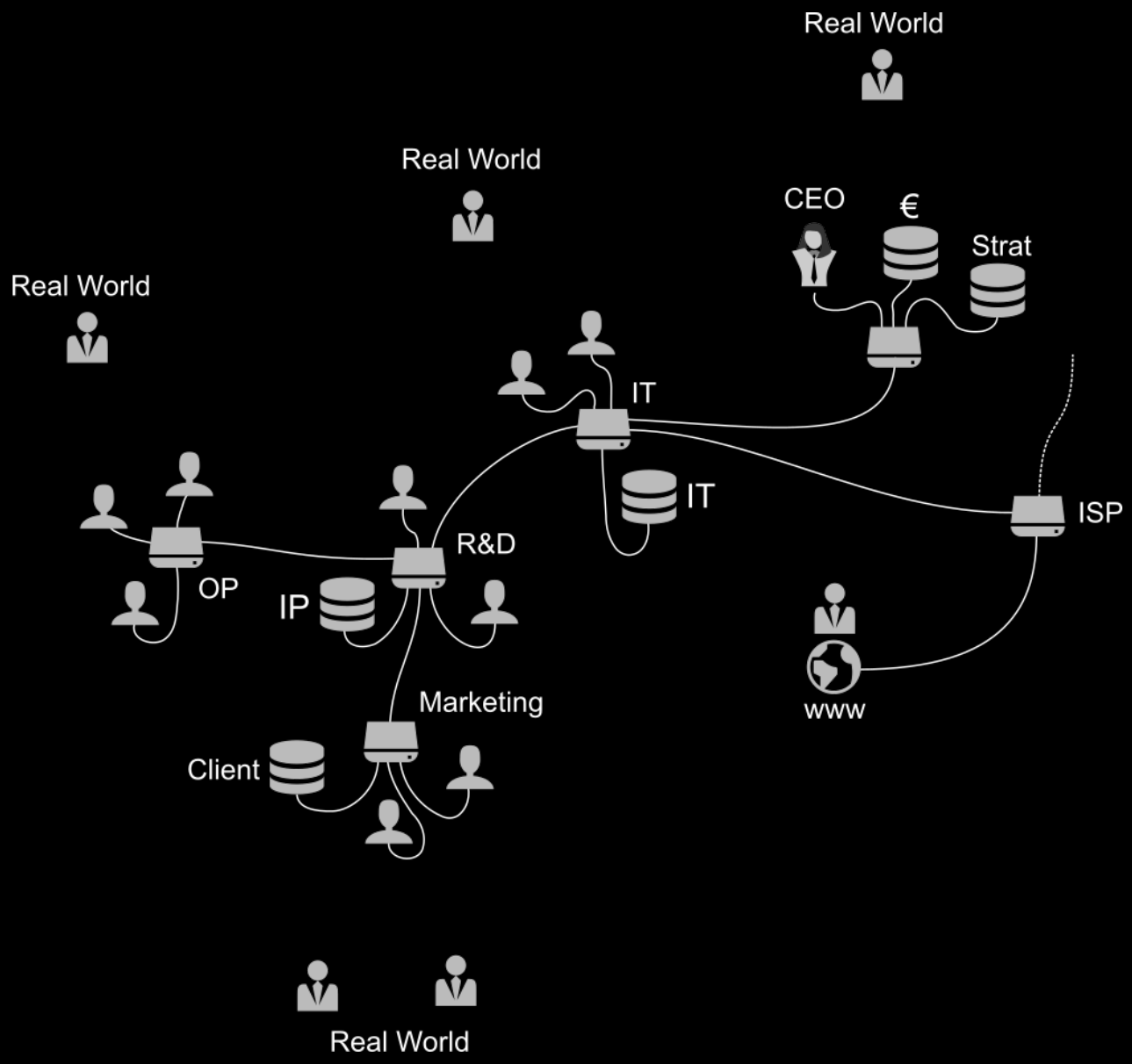
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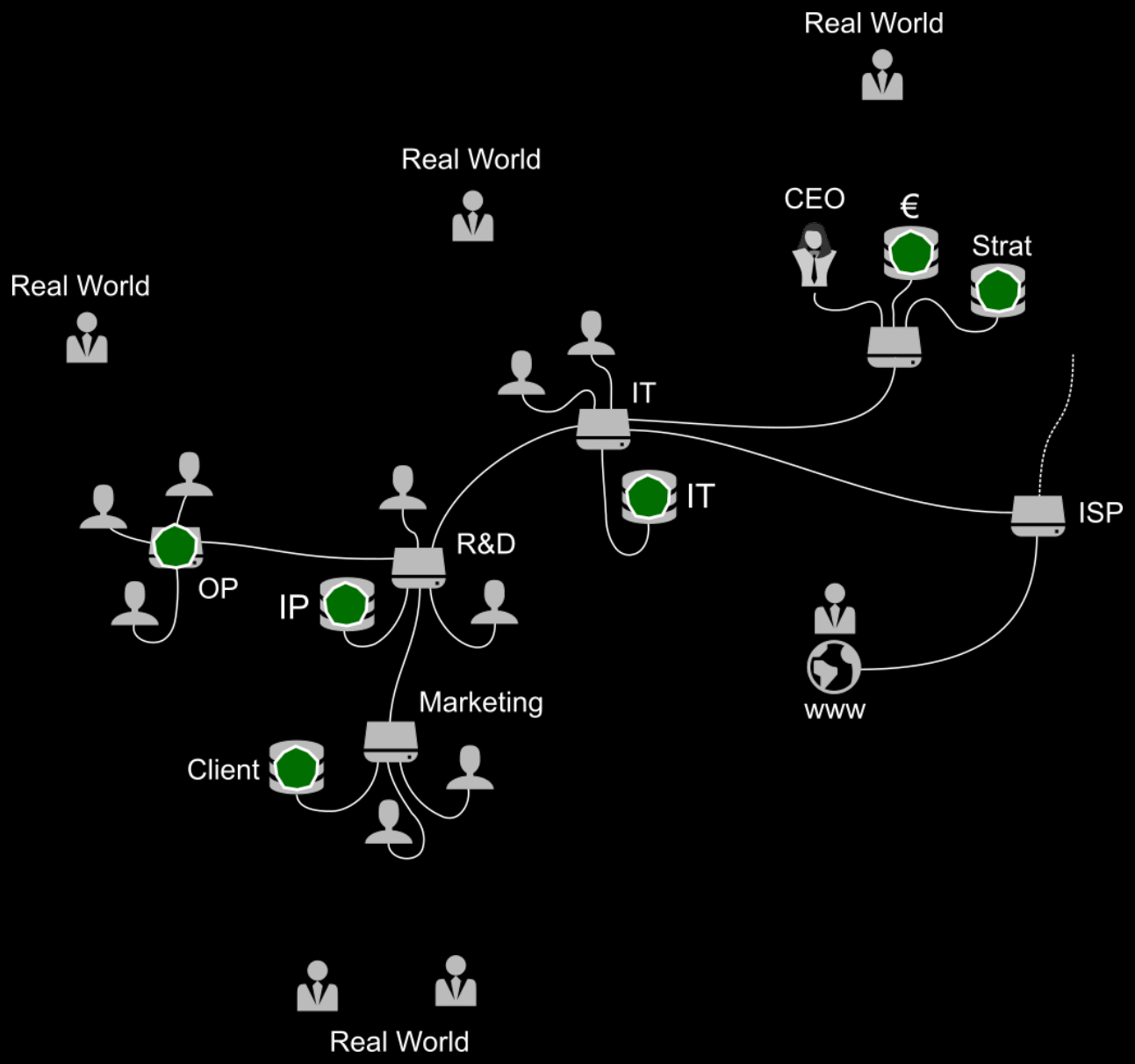
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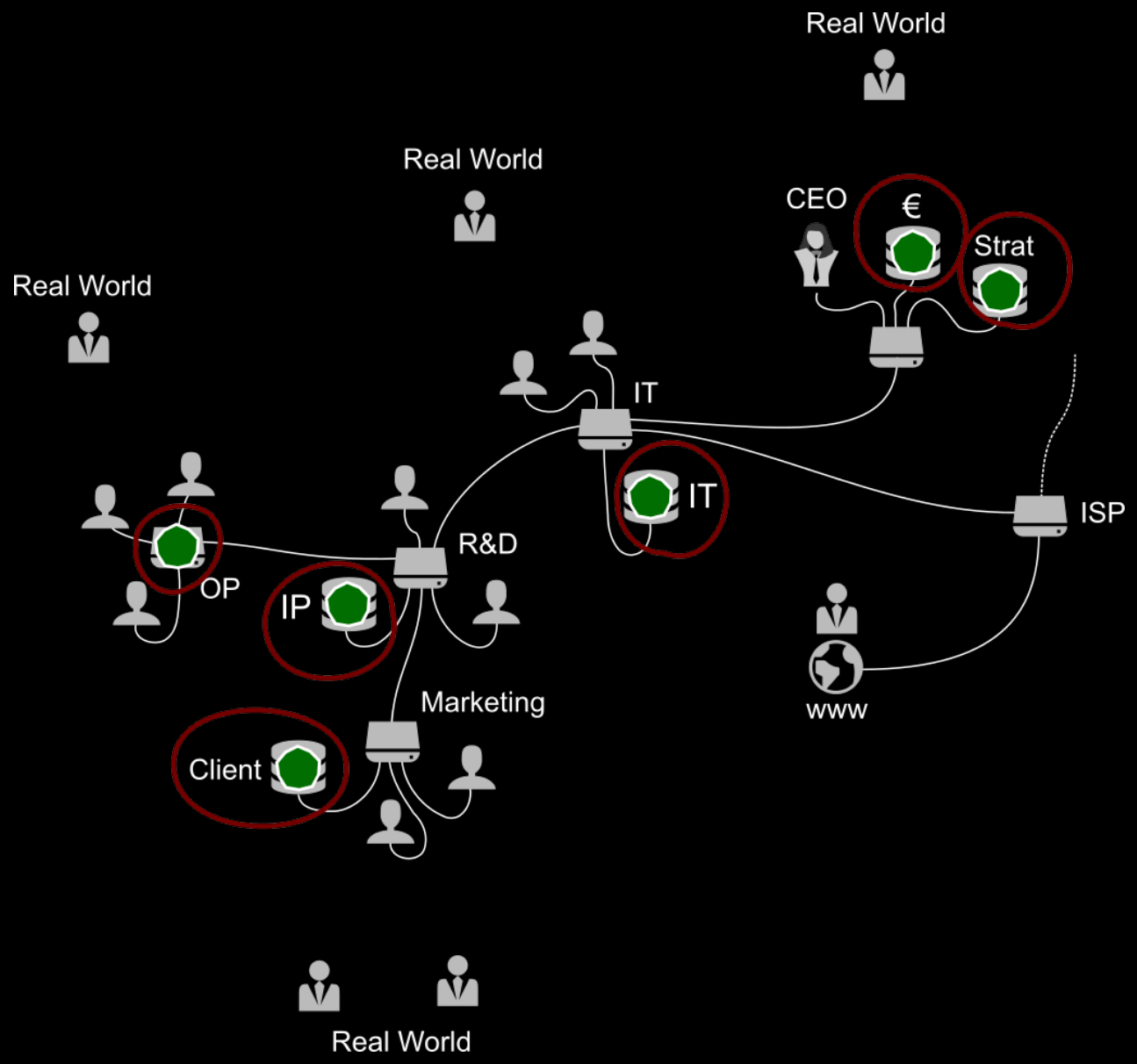
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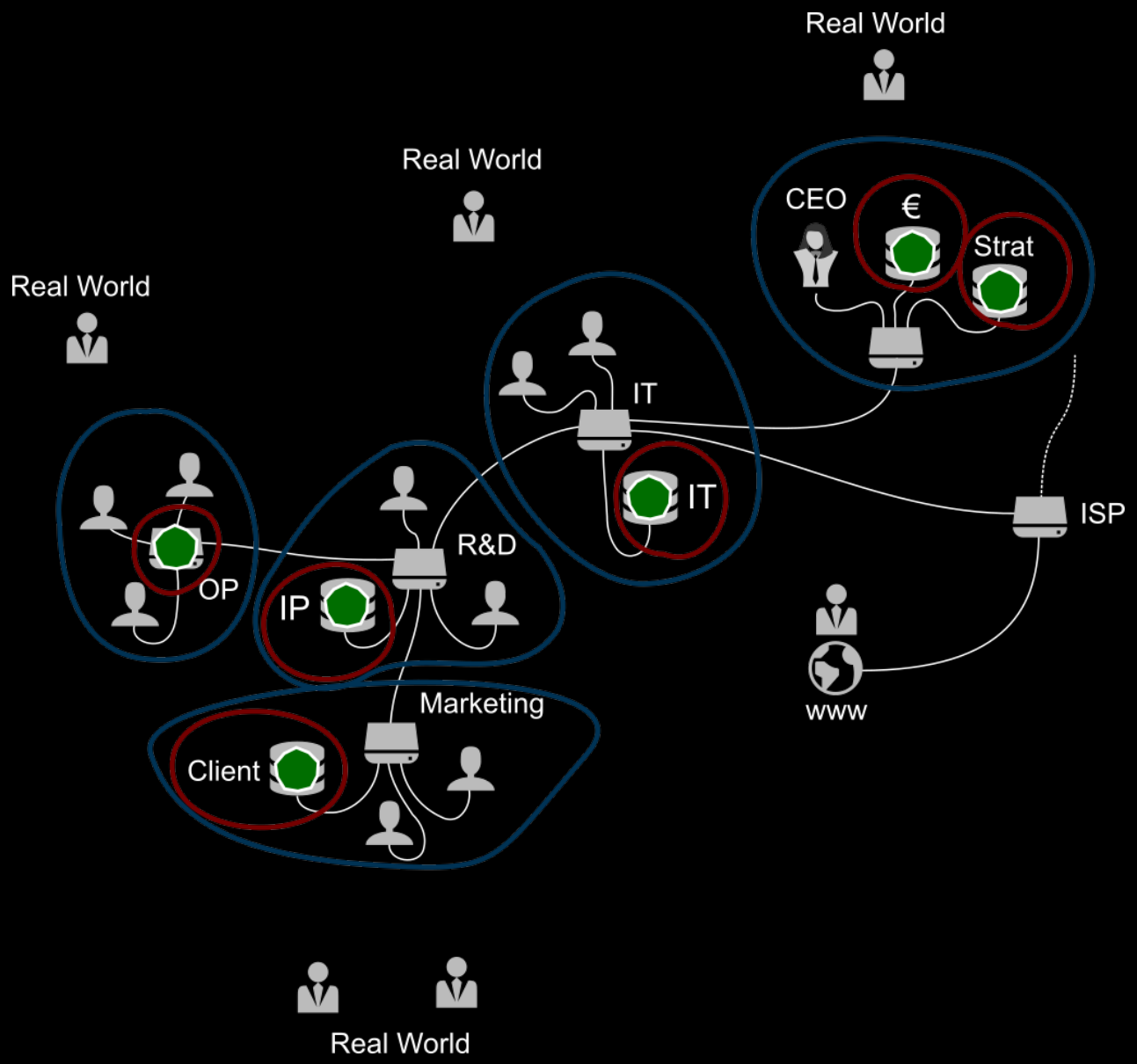
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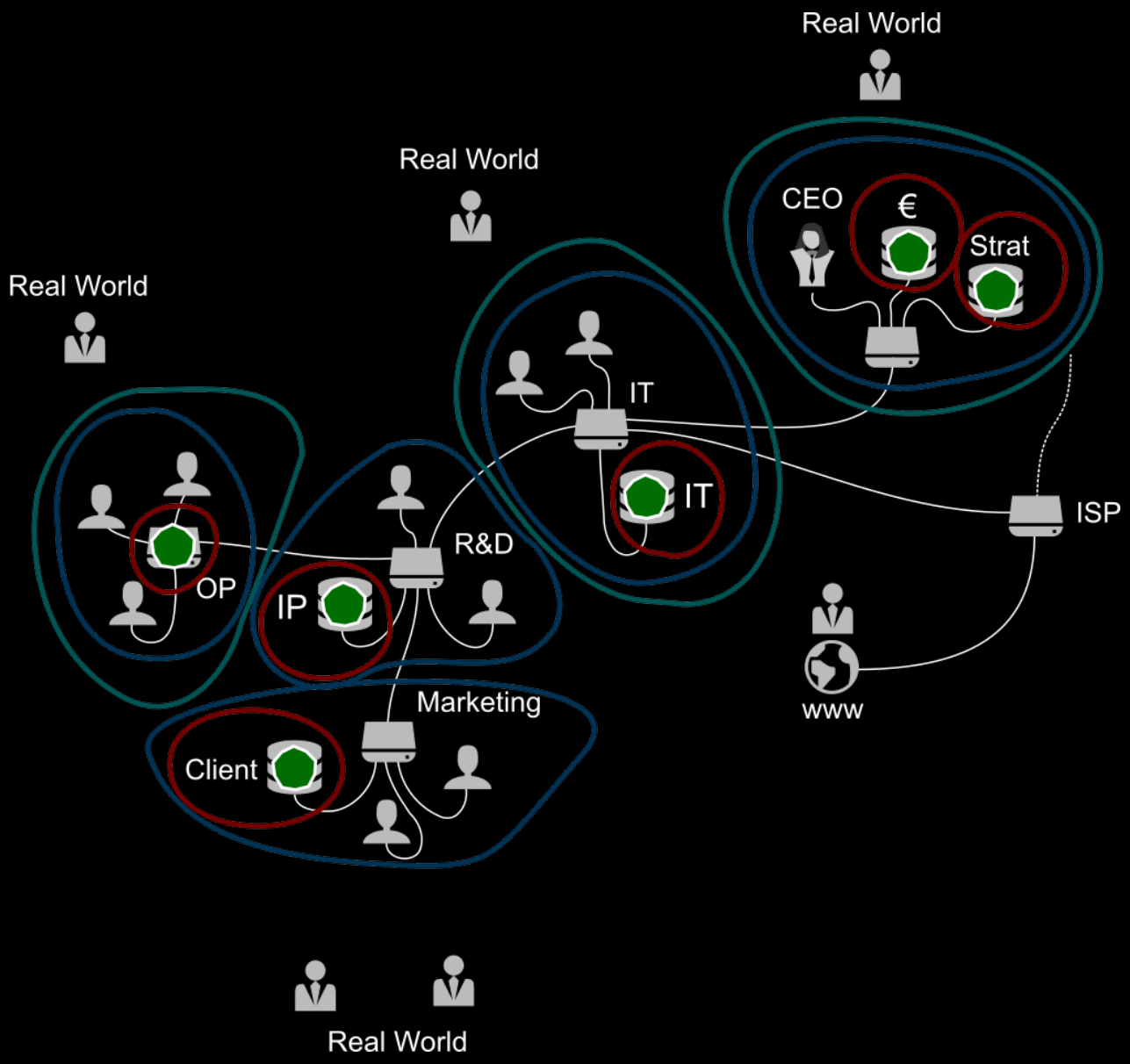
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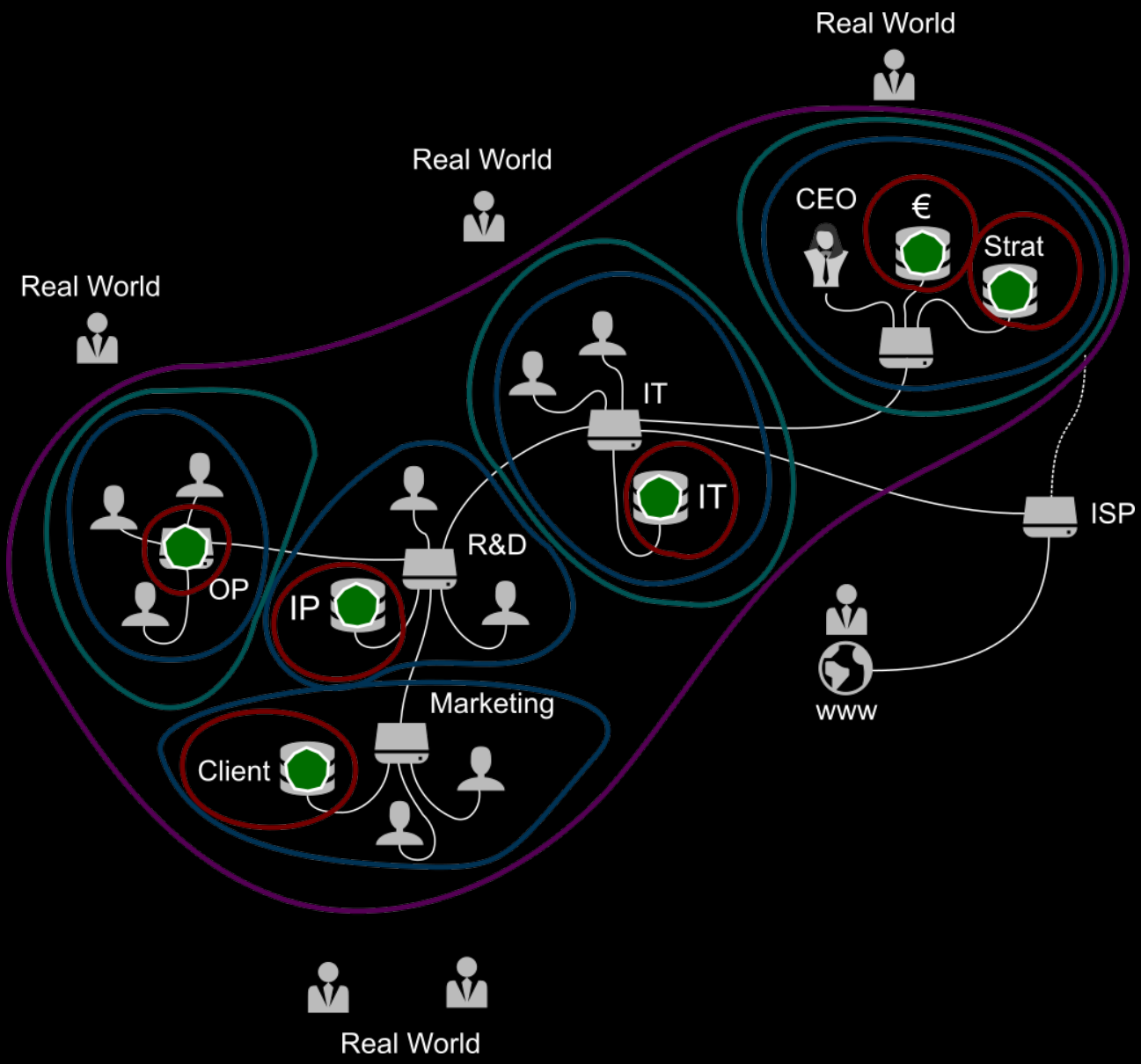
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"Attackers provoke the maintenance of a massive, difficult to manage, costly, expert-driven posture...

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**Key issue:**

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**Key issue:** the "ennemy" is never "killed".

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**Open Question**: what could be an efficient, flexible, reasonably unexpensive strategy against *sustained cyber-siege*?

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As a result, distributed, pseudonymous or anonymous networks are on the rise, challenging boundaries *in the name of security*.

# The anonymous Internet

**Daily Tor users per 100,000 Internet users**

- > 200
- 100 - 200
- 50 - 100
- 25 - 50
- 10 - 25
- 5 - 10
- < 5
- no information

Average number of Tor users per day calculated between August 2012 and July 2013

data sources:
Tor Metrics Portal
metrics.torproject.org
World Bank
data.worldbank.org

by Mark Graham (@geoplace) and Stefano De Sabbata (@maps4thought)
Internet Geographies at the Oxford Internet Institute
2014 • geography.oii.ox.ac.uk

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