

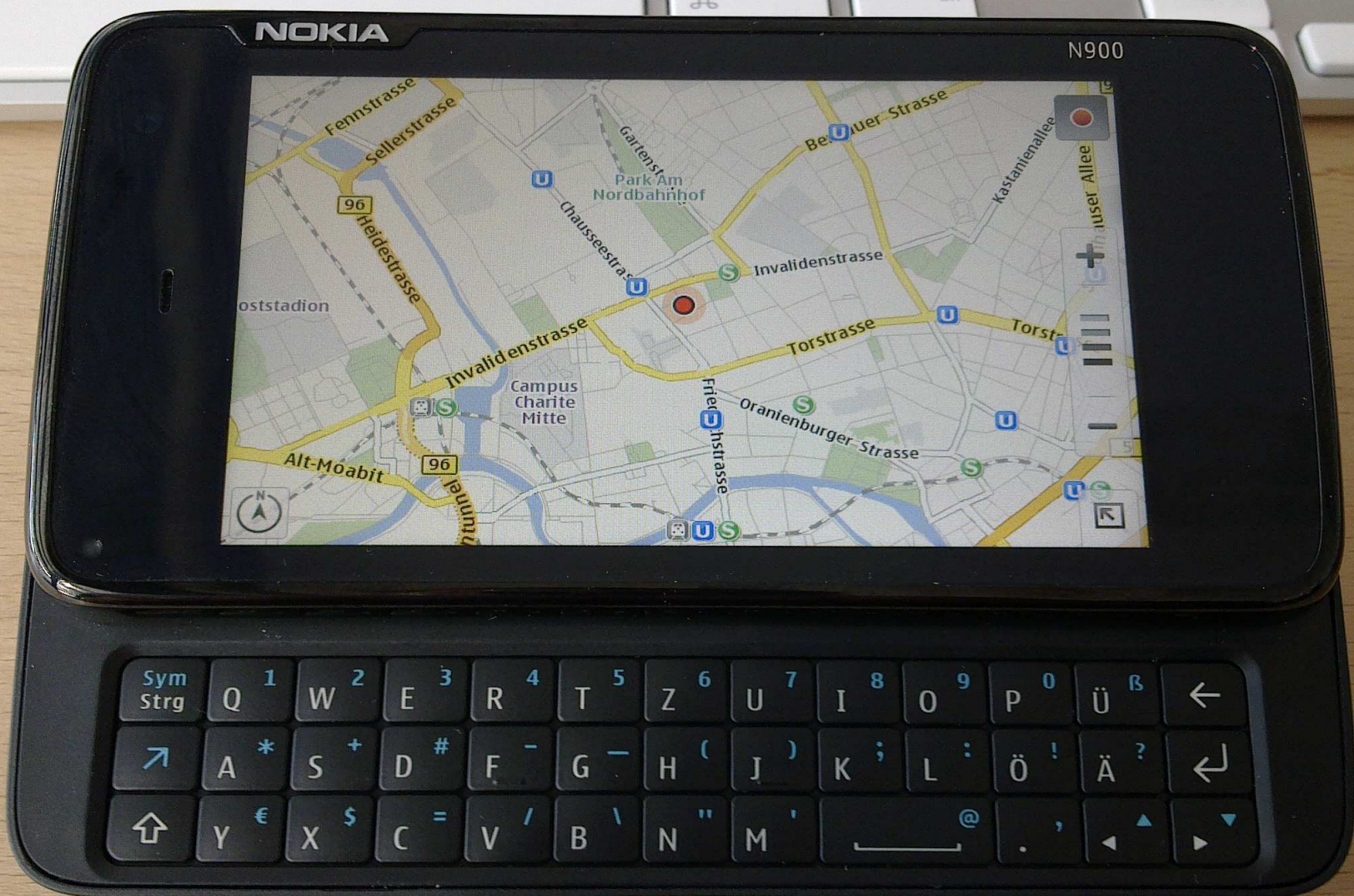


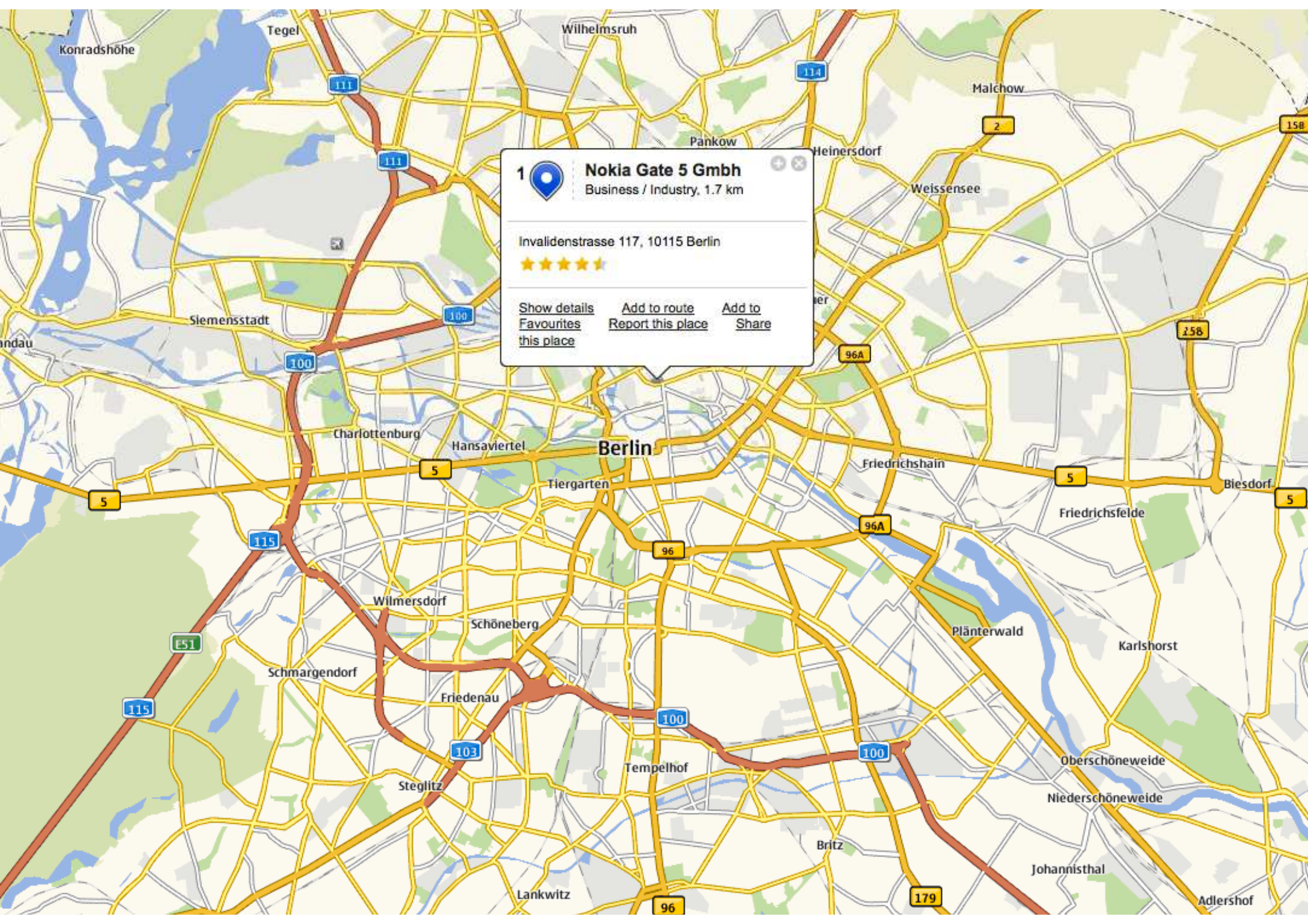
# Scaling to billions of people and places

QCon London 2010

Josh Devins

NOKIA





1  **Nokia Gate 5 GmbH**  
Business / Industry, 1.7 km

---

Invalidenstrasse 117, 10115 Berlin

★★★★★

[Show details](#)   [Add to route](#)   [Add to](#)  
[Favourites](#)   [Report this place](#)   [Share](#)  
[this place](#)

## Just what scale are we talking about?

### Since the start of this talk

1K+ Nokia devices were made and sold (13/sec)

15M+ phone calls were made using Nokia phones

3M+ text messages were sent using Nokia phones

### At any given moment there are

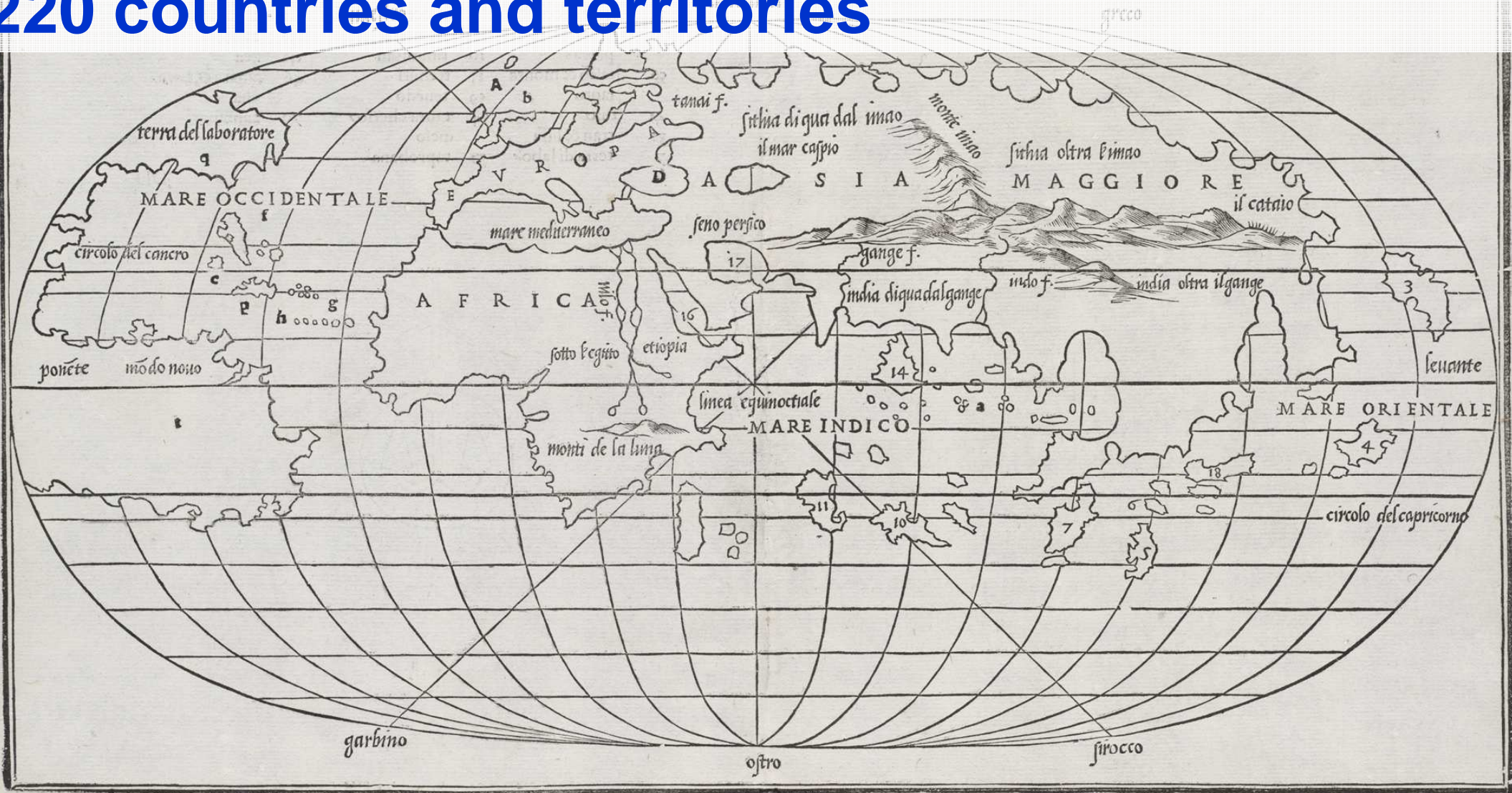
350 Nokia devices at Taj Mahal

525 Nokia devices at the Eiffel Tower

5000 Nokia devices at Disney World

6750 Nokia devices in the Forbidden City

# 220 countries and territories

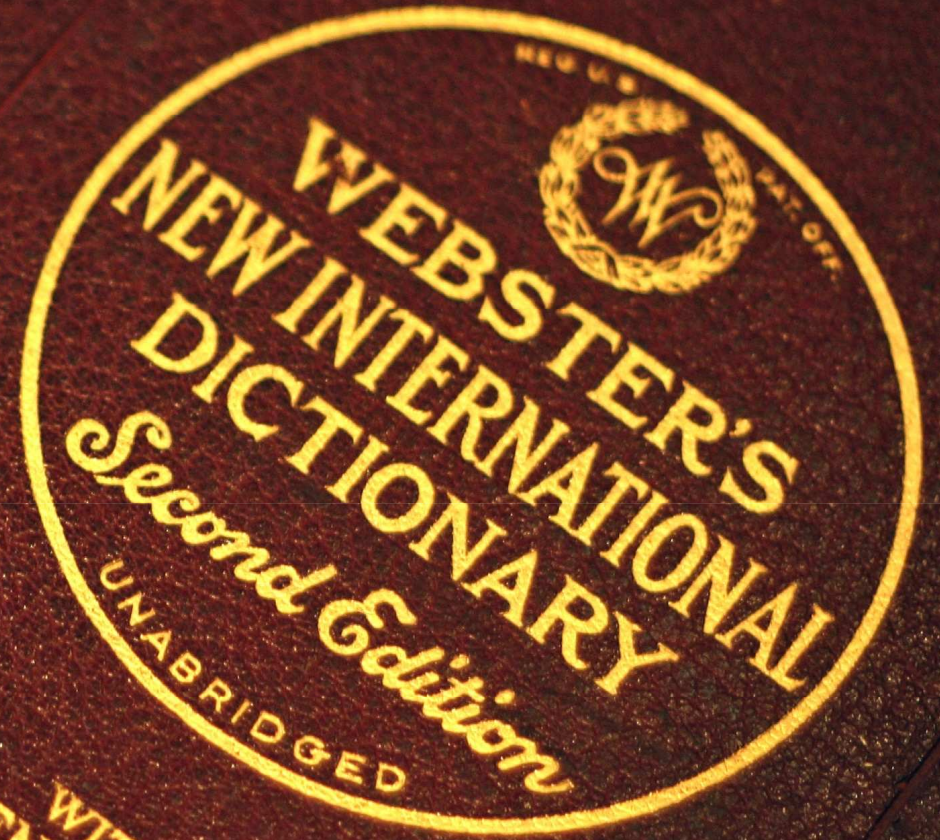


Queste linee che sono per il lungo di questo vniuersale da gli sapienti furono appellate linee parallele, & quelle che tengono forma curua in modo di arco, sono nominate meridia

ni, & il clima tiene da leuante fino in ponente, si come fanno la linea, de lo equinottio, & quella del tropico del cancro, & del capricorno.

Vindone  
1528  
s-ron-29

46 languages



WITH  
REFERENCE HISTORY

# Billions of devices



**82 million GPS devices**





# What consumers see

**Hotel Adlon** 1,3 km Back

Unter den Linden 77, 10117 Berlin

Restaurant




Rating (123 ratings)  
★★★★☆

+49 30 22 61 01

Walk to

Drive to

Add to Favourites

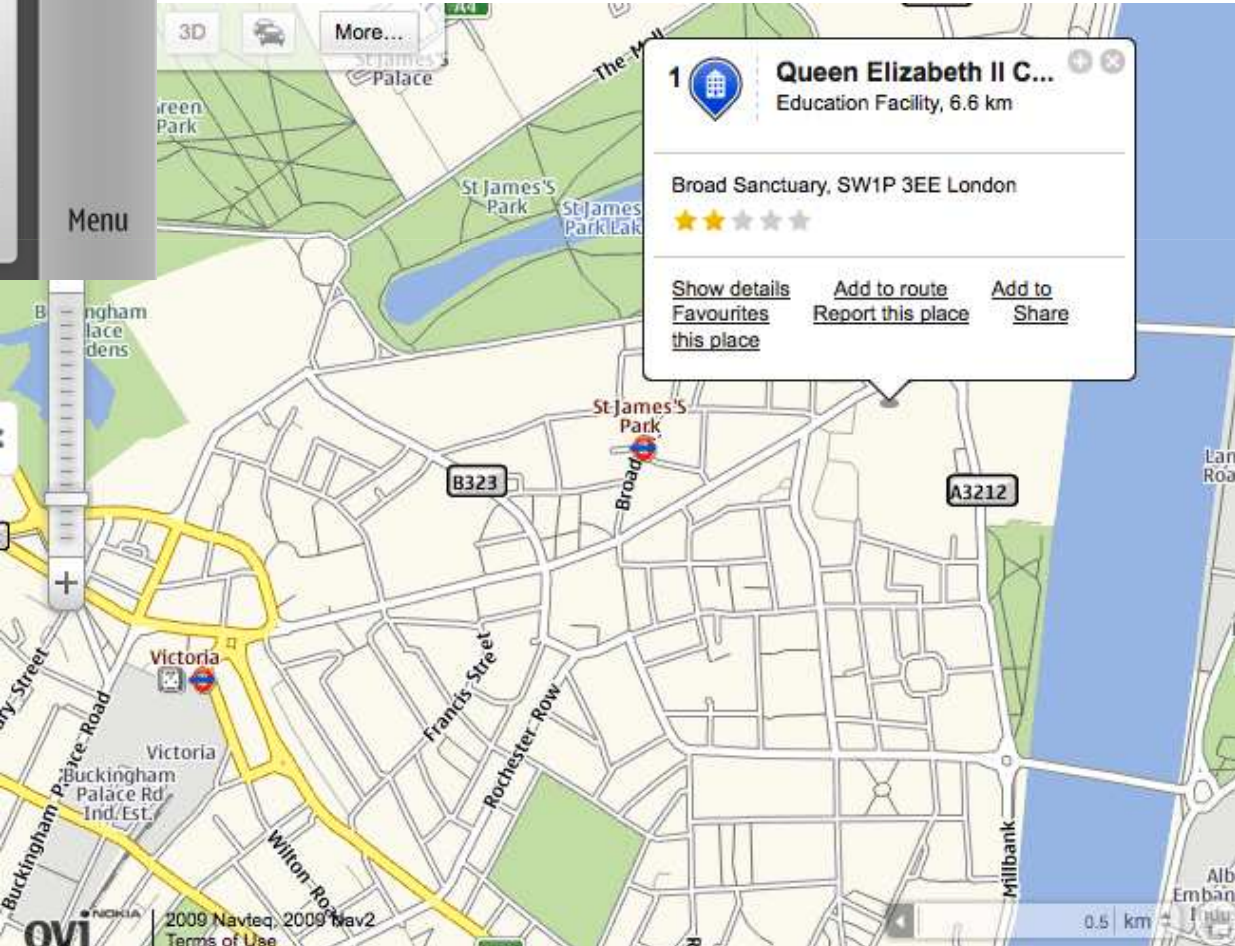



**The Brickhouse**

The restaurant provides top quality cutting edge performance with exciting modern european cuisine including a high level standard...

Open Owner Content

Menu



1  **Queen Elizabeth II C...**  
Education Facility, 6.6 km

Broad Sanctuary, SW1P 3EE London

★★★★☆

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2009 Navteq, 2009 Map2  
Terms of Use

**With this much reach...**

**Brand expectations**

**Public visibility**

**Nearly immediate scale**

# Global presence



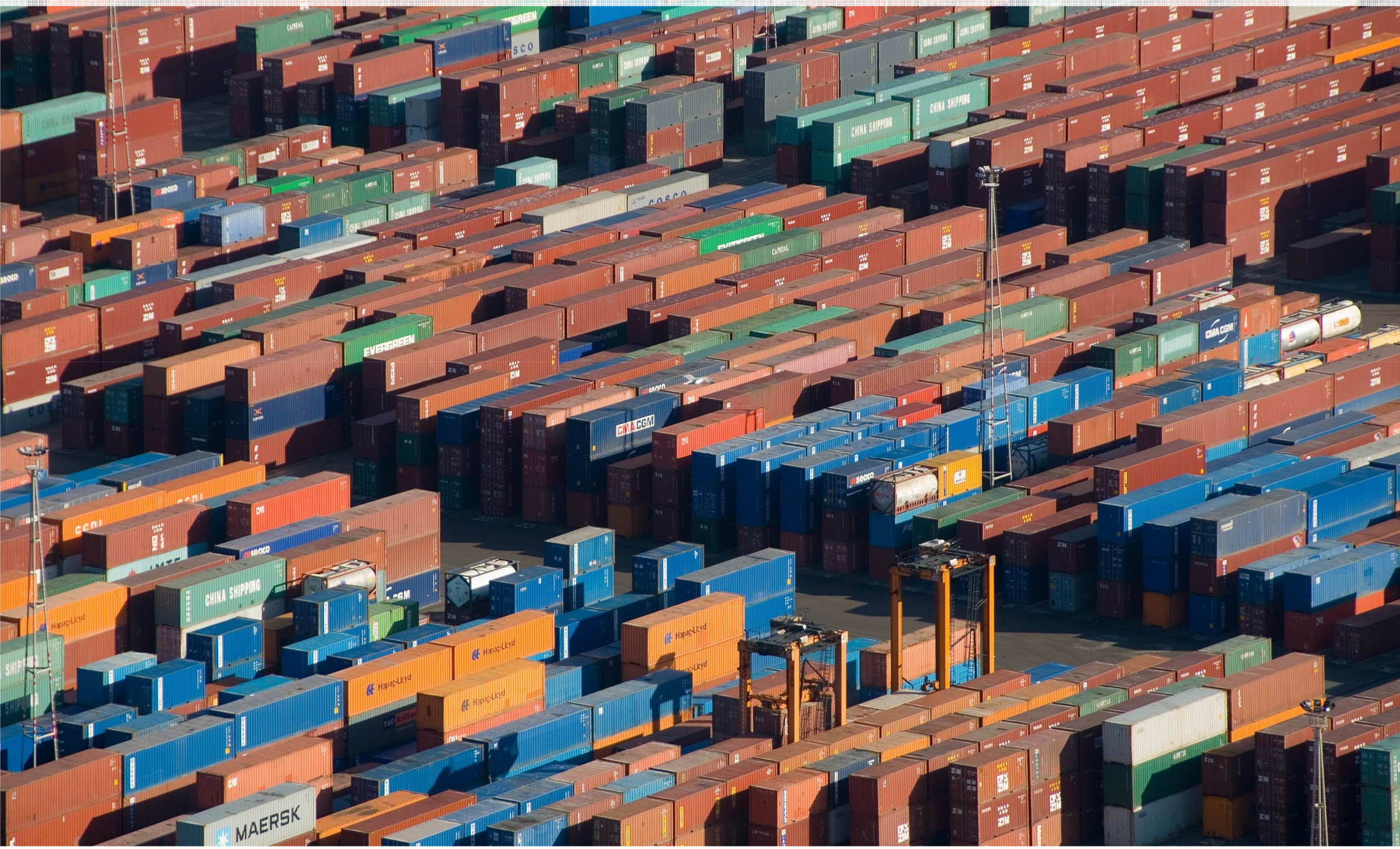
# Legal implications



# A dataset of all the places in the world



**A dataset that is always growing**



# A dense dataset



# New suppliers arrive all the time





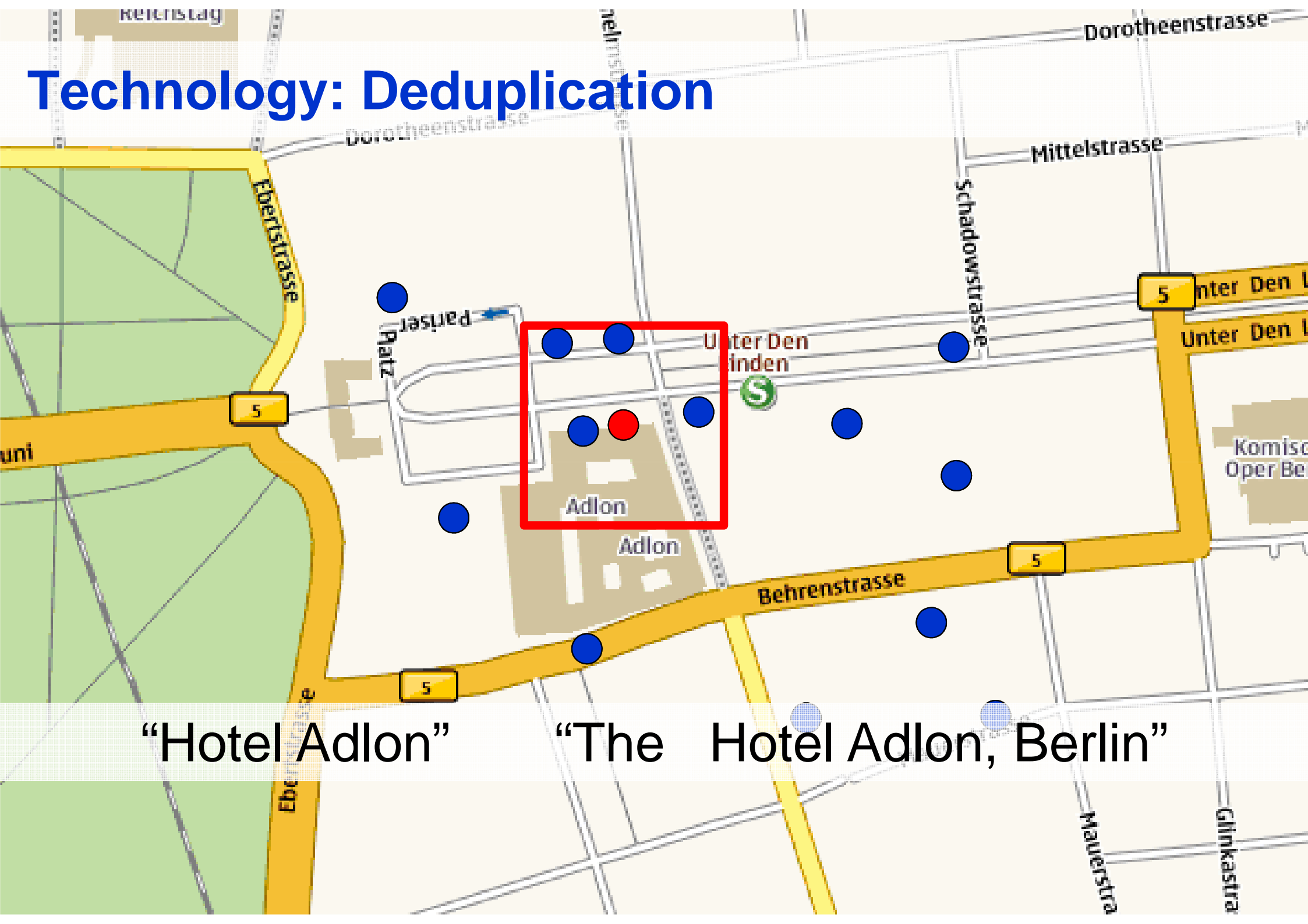
# Technology: Storage



**Data correctness is vital**



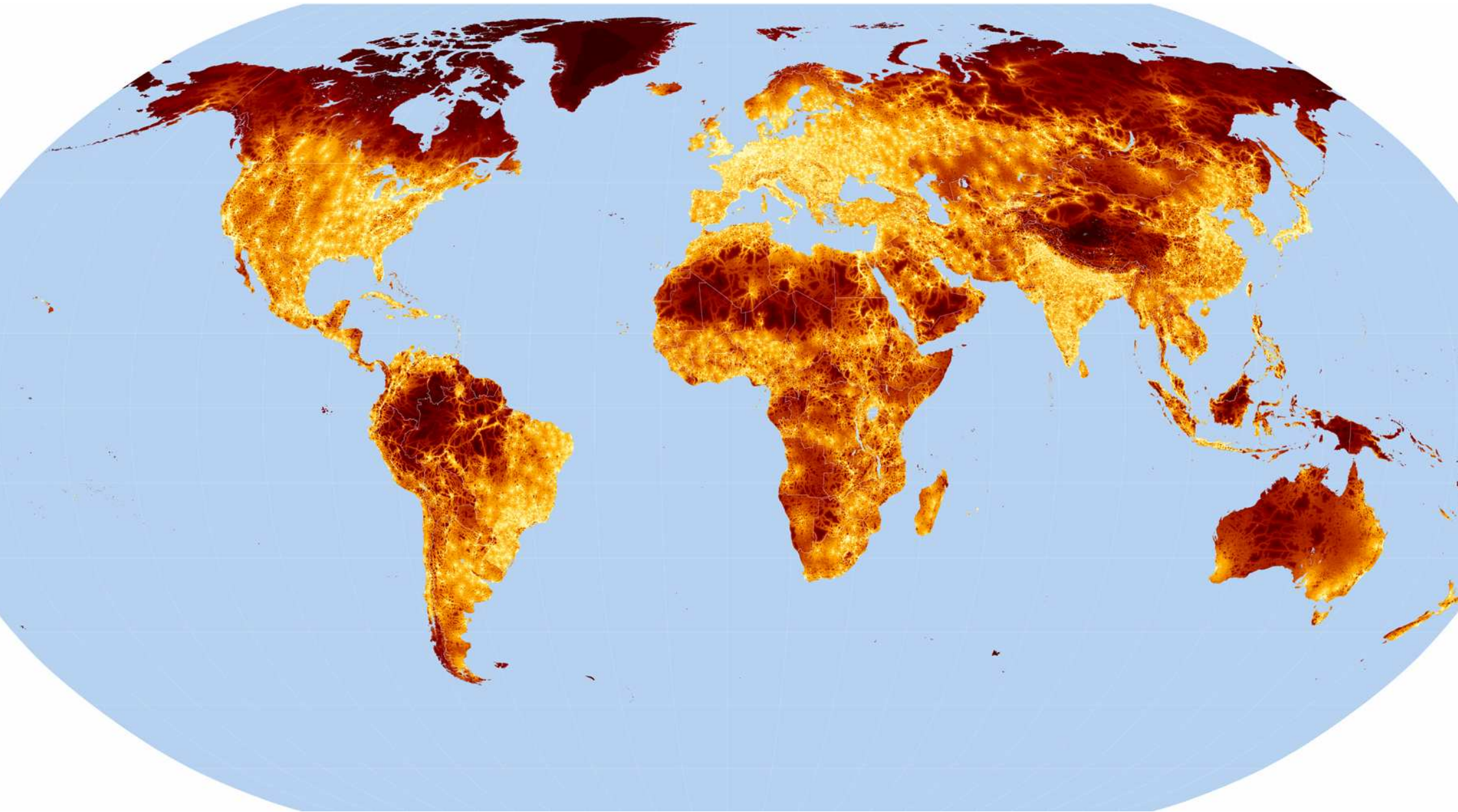
# Technology: Deduplication



“Hotel Adlon”

“The Hotel Adlon, Berlin”

**The data is not evenly distributed**



## Technology: Geospatial search

“phoenix bar in warsaw”

“paris bar berlin”

“moma”

“the bar”

# Coping with traffic spikes



# Coordinating with public announcements



*Trusted Insights and Conversations on the Next Wave of Technology*

## With New Ovi Maps, Nokia Seeks Location Heaven

By Om Malik | Jan. 21, 2010, 1:30am PST | 23 Comments



IMPORTANT POINTS

Expand

In an attempt to ward off competition from the likes of Google, Nokia, the largest maker of mobile phones, has released the latest version of its [Ovi Maps software](#) and made the app available for



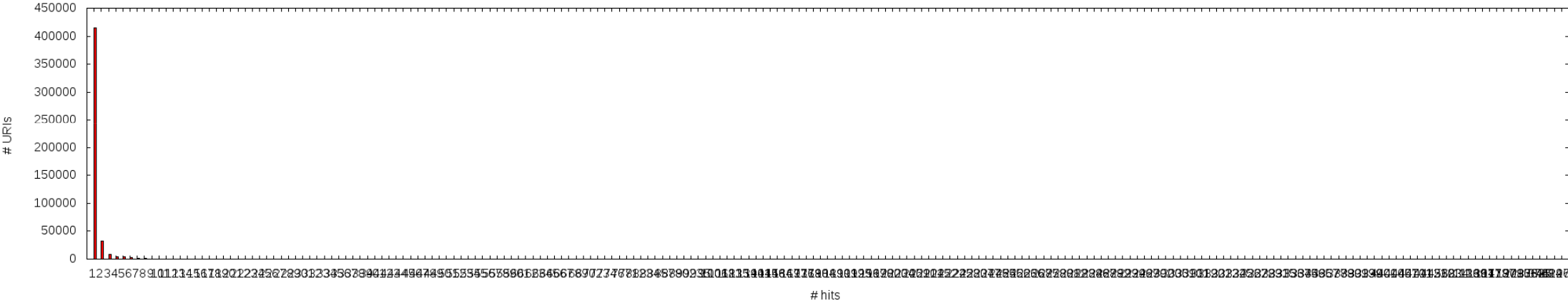
# Anticipating scale



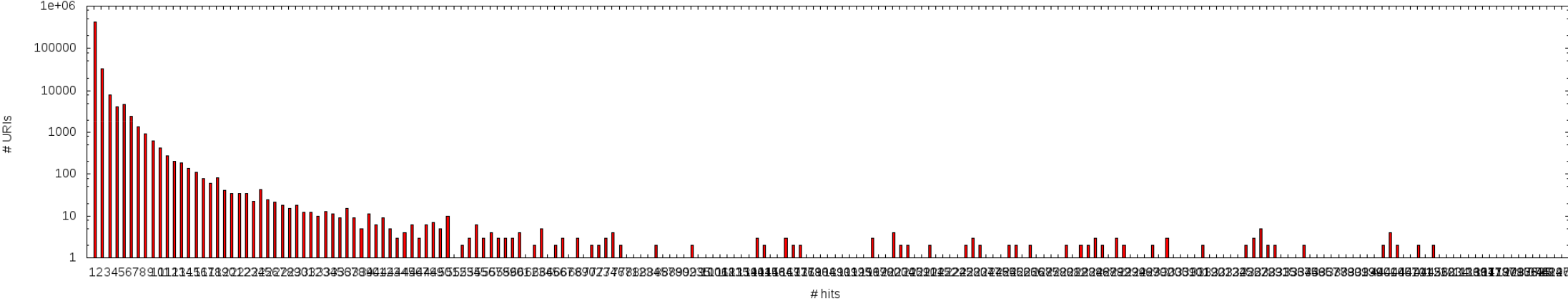
(but avoiding premature optimisation)



# Caching



# Caching



# Technology: Hadoop and Pig

```
logs = FILTER logs BY  
  method == 'GET' AND  
  statusCode >= 200 AND  
  statusCode < 300;
```

```
groupedByUri = GROUP logs BY uri;
```

```
uriCounts = FOREACH groupedByUri GENERATE  
  group AS uri,  
  COUNT(logs) AS numHits;
```

## What's special about mobile?

“There are four times as many mobile subscribers in the world as there are installed PCs.”

- Financial Times ([ft.com](http://ft.com))

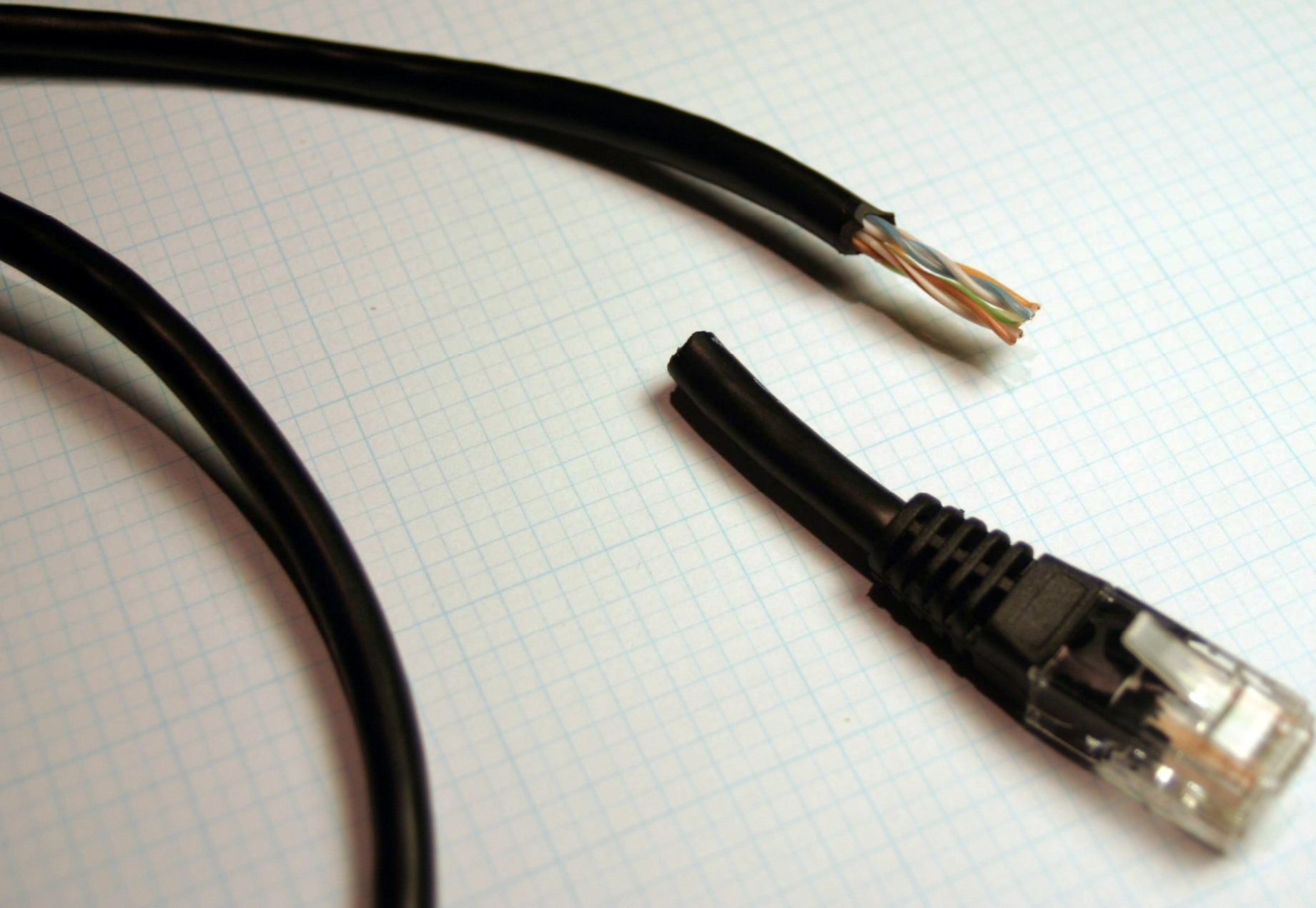
# Serving to mobiles: latency



# Serving to mobiles: bandwidth



# Serving to mobiles: offline



## What about the future?

More devices

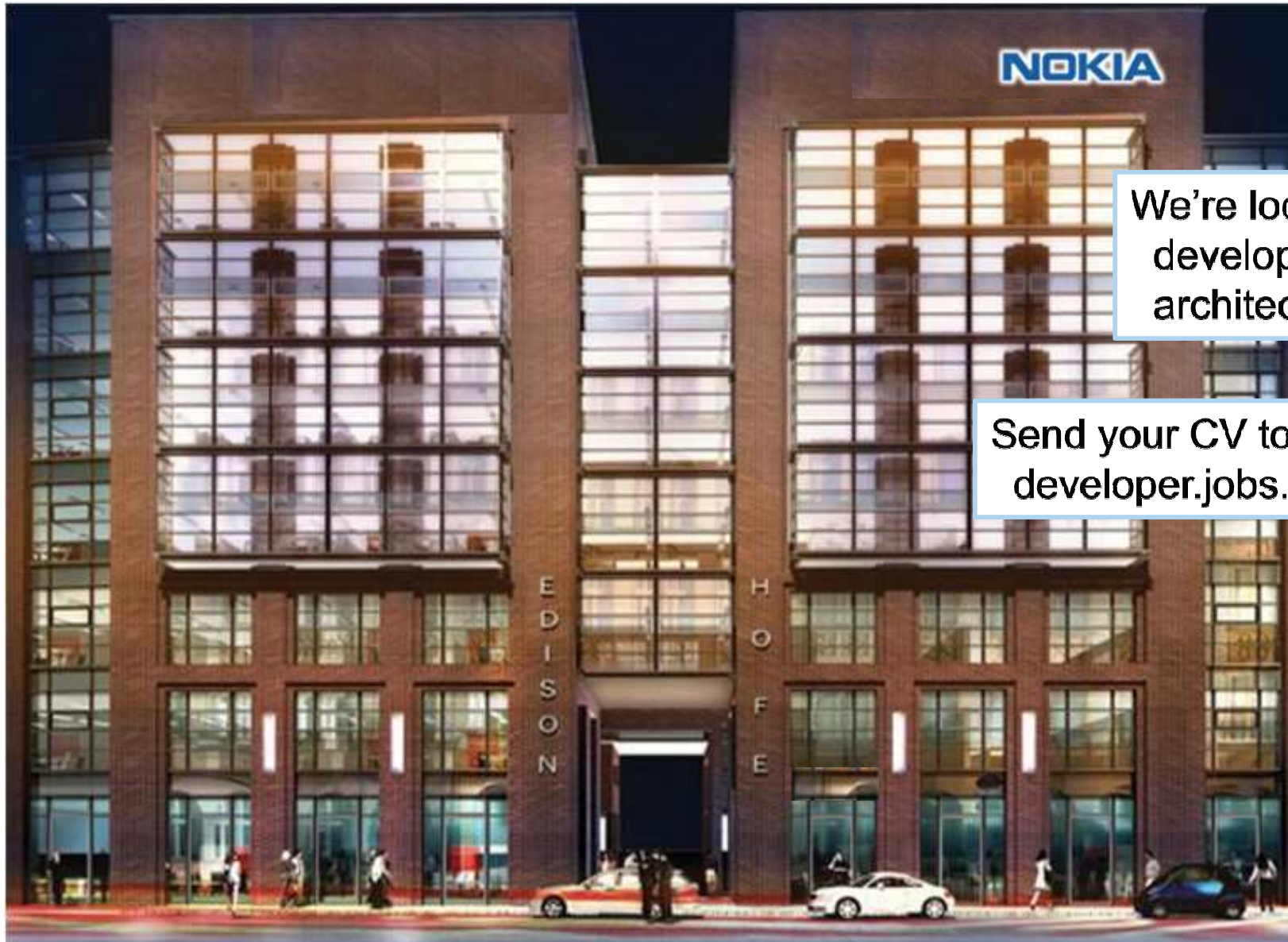
Common web runtimes

Merger of Maemo and Moblin into  
MeeGo

All equals larger reach

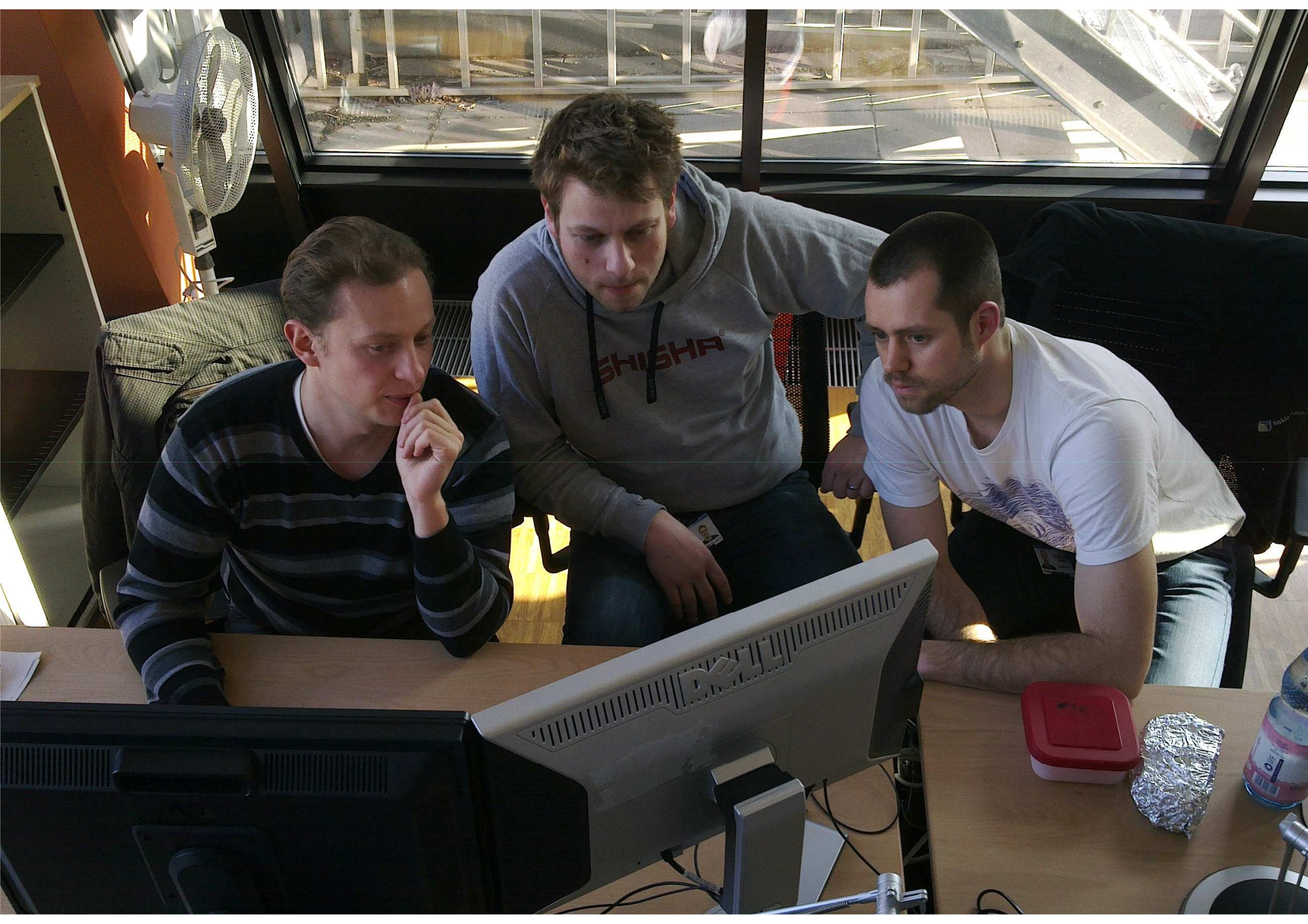


# Come work with us!



We're looking for the best  
developers, testers,  
architects, designers

Send your CV to  
[developer.jobs.berlin@nokia.com](mailto:developer.jobs.berlin@nokia.com)



# Thanks! Any questions?

Josh Devins

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[www.joshdevins.net](http://www.joshdevins.net)

Come work with us in Berlin

[developer.jobs.berlin@nokia.com](mailto:developer.jobs.berlin@nokia.com)

Free beer! Whittle Room, 5:30pm