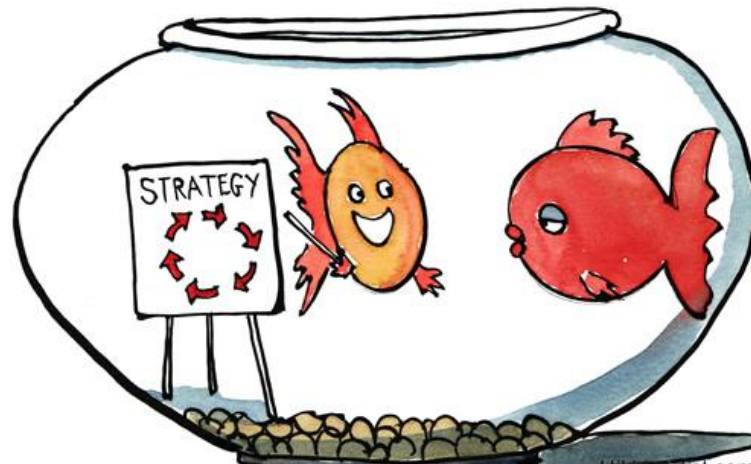


Forum Standaardisatie 25 maart 2015

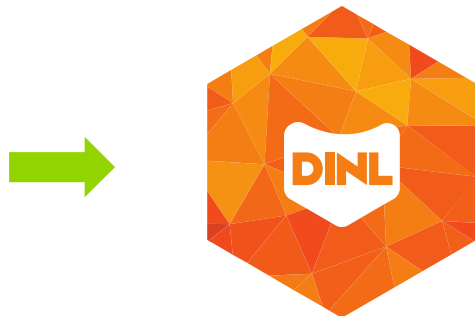
Marc Gauw & Michiel Leenaars



Vandaag...



'3^e Mainport



Focus Forum Standardisatie...



- NLnet, ooit Internet Service Provider (jaren '80 en '90)
- Sinds 1996 een ANBI stichting 'ter bevordering van elektronische informatie uitwisseling'
- De laatste jaren ondersteuning aan met name cybersecurity projecten
- Voorbeelden, o.a. :
 - Trusted Networks Initiative (*AntiDDoS*)
 - Holland Strikes Back (*cybersecurity congres*)
 - Radically Open Security (*non-profit cybersecurity consultancy*)
 - Diverse projecten met het NCSC (*tools en scripts*)
 - Vele donaties, o.a. aan 'veilige' open source ontwikkeling
 - Vele leningen, o.a. aan De Nationale Wasstraat (*AntiDDoS*)
 - Internet.nl (*veilig internet*)
 - Ondersteuning van het Open Inventions Network (*open source patent defense, <https://nlnet.nl/helpmee/>*)
 - Deelnemer in Digitale Infrastructuur Nederland 'DINL' (*cybersecurity en stimulering*) => o.a. deelname Third Mainport onderzoek



De derde Mainport

Executive summary and key message: the Digital Infrastructure, our third mainport, is a driver of the rapidly expanding Online Services sector




=> De 3^e Mainport

‘Het’ Internet ?






Waar woont het internet?

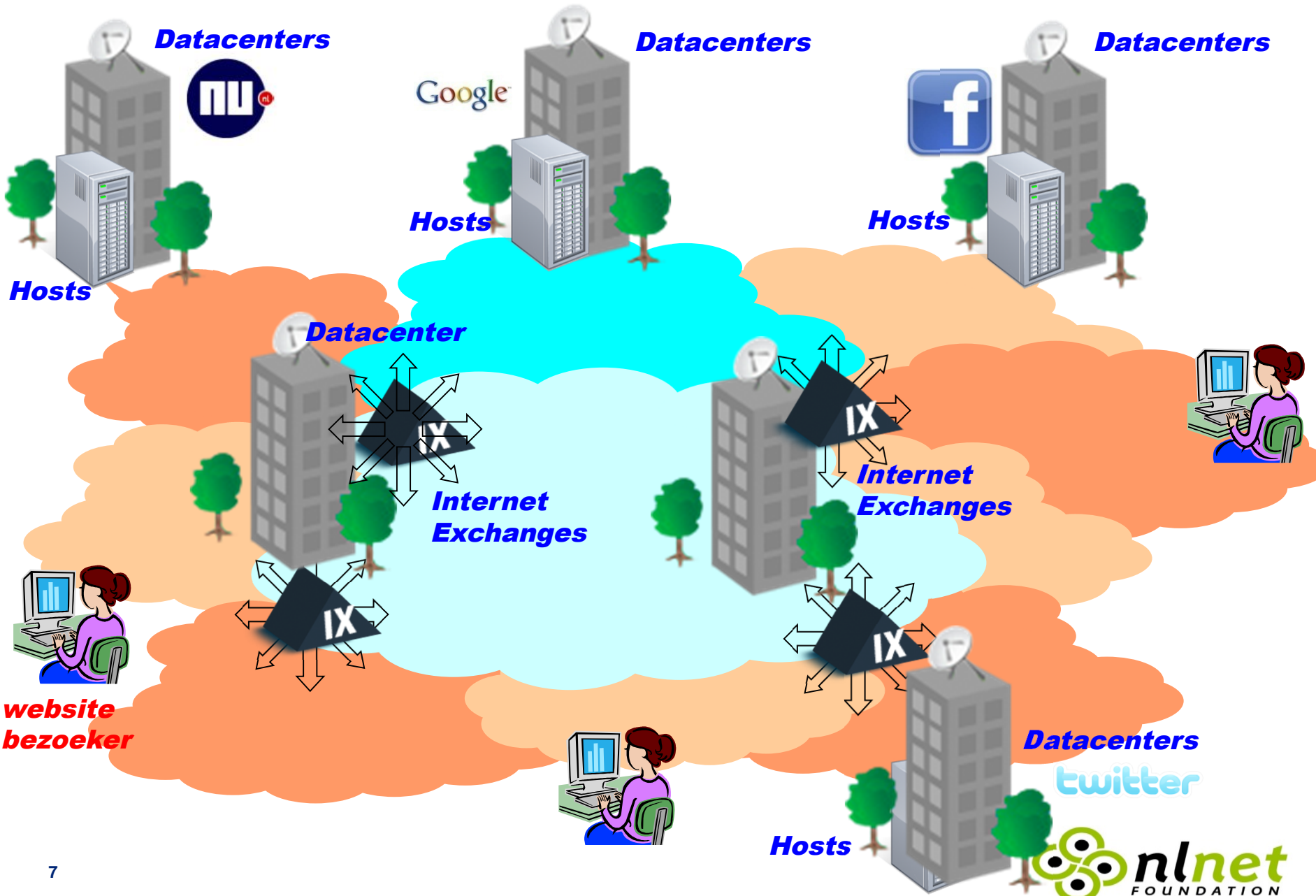
 RTL Nieuws New York
[Abonneren](#) 2.367

Waar woont het internet?

 RTL Nieuws New York
[Abonneren](#) 2.367

Het Inter'net !

3^e Mainport



Dit 'Digitale Infrastructuur' deel van NL ("de derde mainport") verdient extra focus

Media sector



Telecom sector



ICT sector



Deloitte.



Dutch Hosting
Provider Association



Rabobank



3^e Mainport



Platform voor de
InformatieSamenleving



Digital Infrastructure in the Netherlands

The Third Mainport

November, 2013

2013 Report



Platform voor de
InformatieSamenleving



Dutch Hosting
Provider Association



Rabobank



Digital Infrastructure in the Netherlands

Driver for the Online Ecosystem

November, 2014

2014 Report

The Dutch Digital Infrastructure is part of a global backbone for delivering digital services to business and consumers on a variety of devices

2013 Report

Digital Enabled Services

Enterprise Internal Applications	E-commerce	Digital Media	Cloud	Payment providers	Online gaming	Social media
ERP CRM	bol.com amazon.com	 				 

Digital Infrastructure

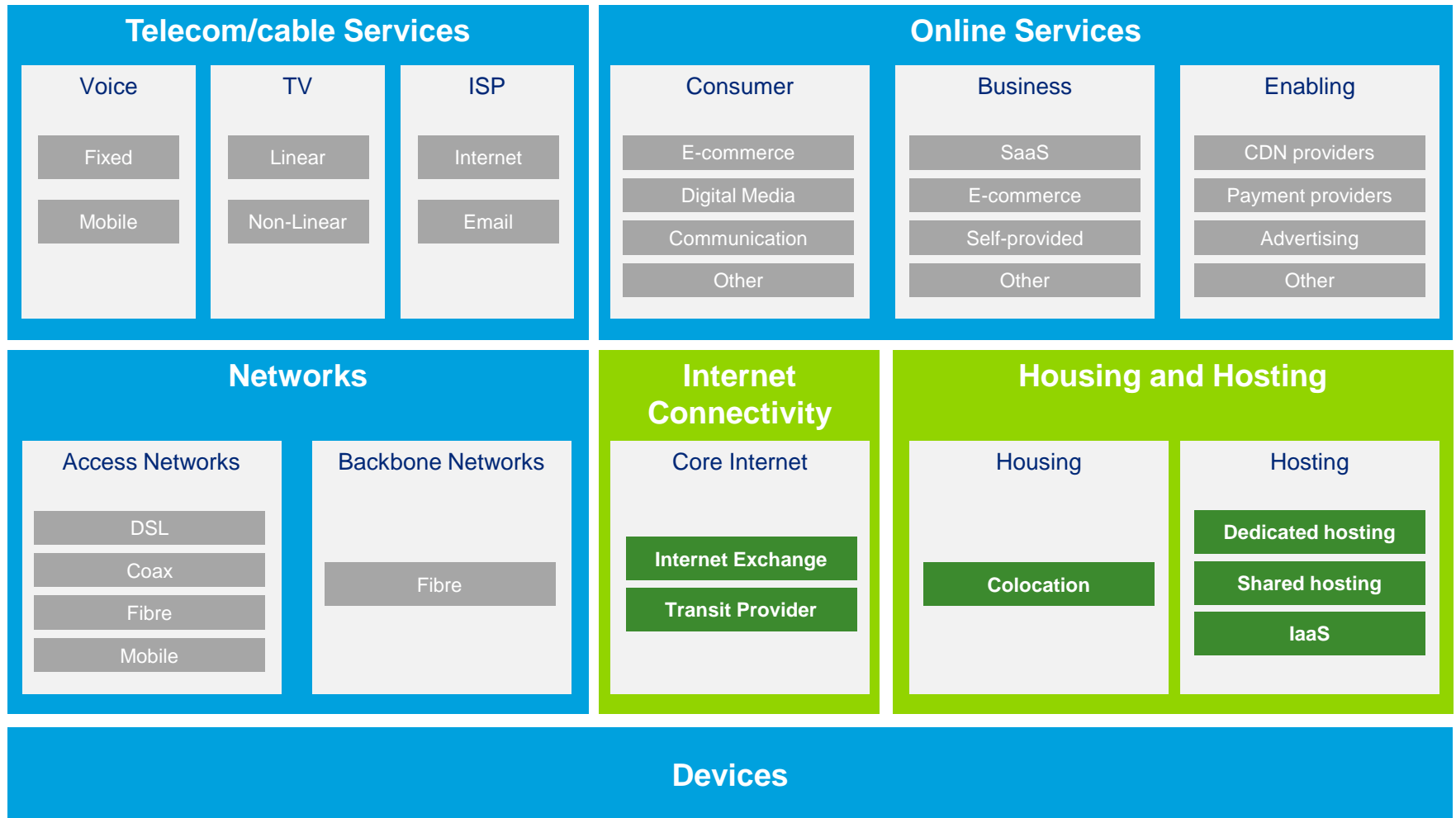


End User Devices



Together with Networks, the Digital Infrastructure consists of Internet connectivity and housing & hosting and is part of the larger online ecosystem

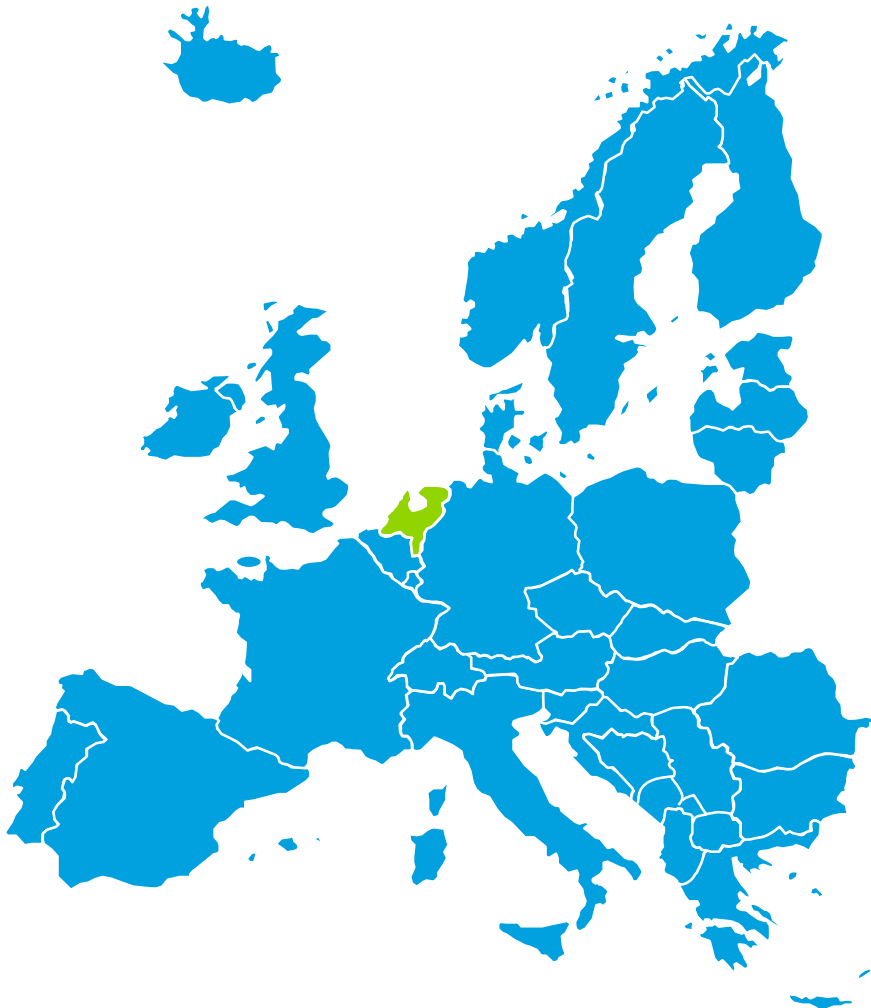
2014 Report



Sources: Dutch Ministry of Economic Affairs Report; A.T. Kearney Report; Deloitte analysis

In this global Digital Infrastructure, the Netherlands is among the leading countries

2013 Report



Internet Connectivity

- The Amsterdam Internet Exchange (AMS-IX) is the largest Internet Exchange worldwide in terms of number of connected peering networks. It is the 2nd largest Internet Exchange worldwide in terms of traffic (bits per second)
- The Amsterdam Internet Exchange (AMS-IX) is a mainport for Internet traffic more than the port of Rotterdam and Schiphol are for containers and passengers respectively
- The Netherlands scores 2nd place in EMEA and 6th place globally on broadband penetration and average measured connection speed

Data centres

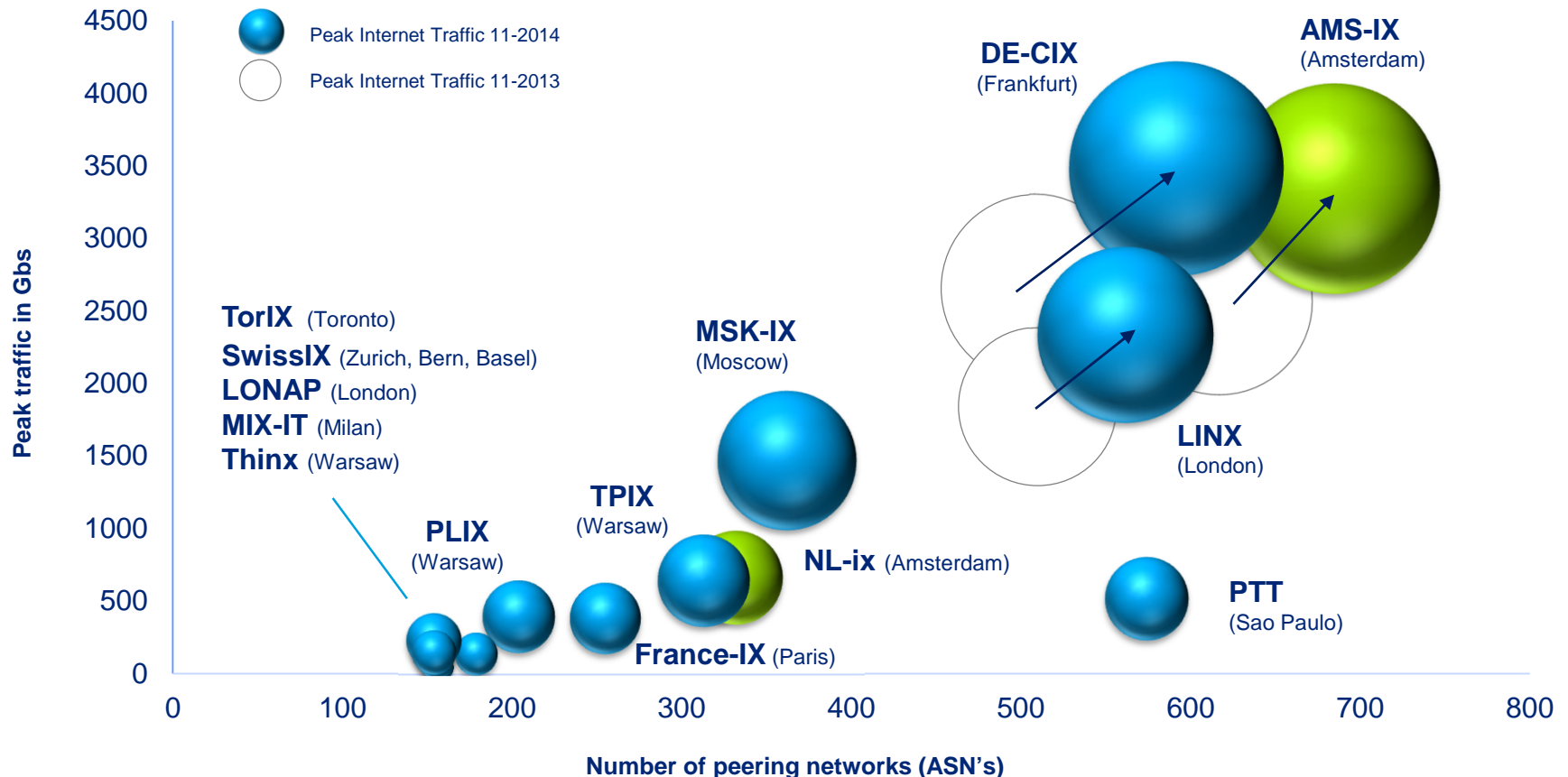
- The Amsterdam region is part of a leading group of tier-1 data centres (together with London, Frankfurt and Paris) and shows the highest increase in square meters

The Amsterdam Internet Exchange (AMS-IX) is the largest in terms of connected Autonomous System Numbers (ASN)

Core Internet
Internet Access
Colocation
Hosting

2013 /14 Report

The significance of an Internet Exchange is measured by (a) the number of peering networks (Autonomous System Numbers) and (b) the Peak Internet traffic in Gigabit per second. The graph shows these two metrics for the largest IXP's in the world.



Note: The IXP's from Equinix (Zurich), Terremark (Miami) are not listed since traffic is not known
Sources: EURO-IX website; IXP websites

AMS-IX is a mainport for Internet traffic more than Rotterdam and Schiphol are for containers and passengers respectively

Core Internet
Internet Access
Colocation
Hosting































2014 Report

Rank	Top Internet exchanges (by number of peering networks, '14)	Rank '13	Top container ports (by volume, '13)	Rank '12	Top airports (by passengers, '14)	Rank '13
1	AMS-IX, Amsterdam, NL	1	Shanghai, CN	1	Atlanta GA, US (ATT)	1
2	DE-CIX, Frankfurt, DE	2	Singapore, SG	2	Beijing, CN (PEK)	2
3	PTT, Sao Paulo, BR	4	Shenzhen, CN	4	London, GB (LHR)	3
4	LINX, London, UK	3	Hong Kong, CN	3	Los Angeles CA, US (LAX)	6
5	MSK-IX, Moscow, RU	5	Busan, KR	5	Tokyo, JP (HND)	4
6	NL-IX, Amsterdam, NL	6	Ningbo, CN	6	Chicago IL, US (ORD)	5
7	TPIX, Warsaw, PL	-	Qingdao, CN	8	Dubai, AE (DXB)	7
8	Terremark, Miami, US	7	Guangzhou, CN	7	Dallas/Fort Worth TX, US (DFW)	9
9	France-IX, Paris, FR	13	Dubai, AE	9	Paris, FR (CDG)	8
10	PLIX, Warsaw, PL	8	Tianjin, CN	11	Hong Kong, HK (HKG)	11
11	Equinix, Zurich, CH	9	Rotterdam, NL	10	Frankfurt, DE (FRA)	12
12	TorIX, Toronto, CA	-	Dalian, CN	20	Jakarta, ID (CGK)	10
13	SwissIX, Zurich, CH	11	Port Kelang, MY	13	Istanbul, TR (IST)	18
14	LONAP, London, UK	14	Kaohsiung, TW	12	Guangzhou, CN (CAN)	16
15	MIX-IT, Milan, IT	15	Hamburg, DE	14	Singapore, SG (SIN)	13
16	Thinx, Warsaw, PL	10	Antwerp, BE	15	Amsterdam, NL (AMS)	14

Sources: Euro-IX website; World Shipping Council website; Airports Council International website

The housing market is dominated by large international players who can leverage scale in this capital intensive industry

2013 Report

	Country of origin	Company	Footprint in NL Facilities	Size (m ²)		Country of origin	Company	Footprint in NL Facilities	Size (m ²)	
	International Players		 DIGITAL REALTY Data Center Solutions	5		33,771	Dutch Local Players		 previder	2
		 GLOBAL SWITCH	1	38,723		 DATACENTERGROUP		2	5,200	
		 kpn	11	30,000		 switch datacenters		1	4,100	
		 EQUINIX	3	12,800		 Interconnect		2	3,700	
		 TelecityGroup	5	19,000		 SmartDC Dataport of Rotterdam		1	3,500	
		 interxion™	7	13,300	<p>Further data centres of Dutch local players:</p> <ul style="list-style-type: none"> • ≈ 10 data centres with 1,000-2,000 m² • ≈ 15 data centres with 500-1,000 m² • ≈ 100 data centres with <500 m² 					
		 Level(3)	3	12,800						
		 evoswitch NEXT GENERATION DATACENTERS	1	10,000						
		 eunetworks	1	6,000						
		 terremark	1	2,700						

Source: Company websites, www.datacentrumgids.nl

Although Amsterdam is a data centre hotspot, colocation facilities are scattered all over the Netherlands



- Colocation > 1,000 m²
- Colocation 500 - 1,000 m²
- Colocation 250 – 500 m²

Important: this map only shows the commercial colocation data centres. Large proprietary data centres of enterprises or IT providers like Google and Microsoft are not shown here.

Since only a fraction of all IT equipment is housed in a colocation data centre, a complete overview of all data centres in NL is much more extensive.

Sources: www.datacentrumgids.nl

The Amsterdam region is part of a leading group of tier-1 data centres and shows strong increase in supply

Core Internet
Internet Access
Colocation
Hosting

2014 Report

Region	Supply m ²	Availability m ²	Increase last year	Supply m ² per € bn GDP
London	298	52	7.2%	138.9
Frankfurt	159	22	3.9%	56.2
Paris	111	14	4.7%	52.9
Amsterdam	101	16	6.3%	168.3

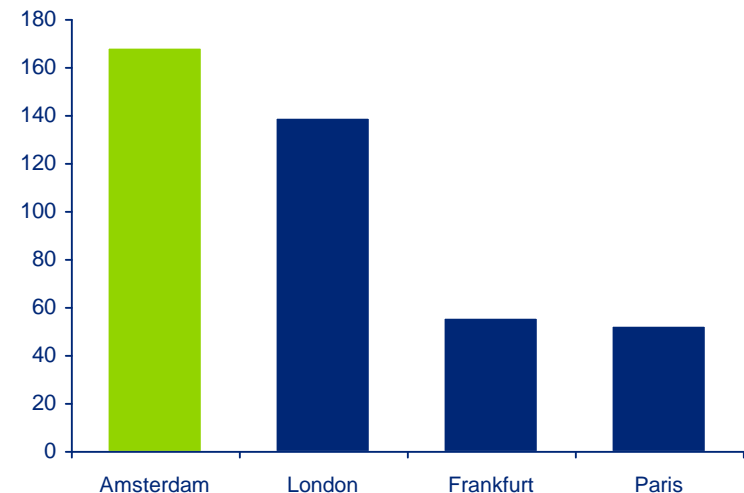
- London, Frankfurt, Paris and Amsterdam form the leading group of colocation data centres hot spots in Europe. There is a large distance between this leading group of four and the runner up on position 5 (Madrid)
- Measured in colocation supply m² per € bn GDP, Amsterdam exceeds all other cities
- Amsterdam has shown a strong increase in the past year, smaller than London but larger than Frankfurt and Paris

European Tier-1 data centres overview

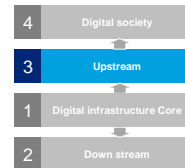


Sources: CBRE Report; TeleGeography Report

Colocation supply m² per € bn GDP



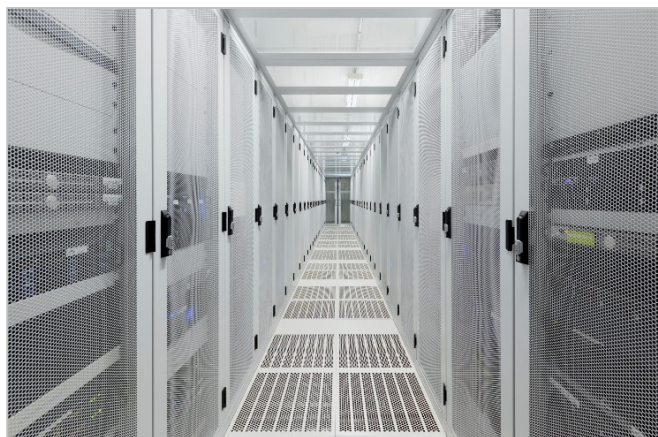
Large investments in data centres within the Netherlands by corporate multinationals like Google and IBM generate additional employment



2014 Report



- Google invests **€600 million** on a data centre located in Delfzijl, the Netherlands.
- The estimated additional employment that the data centre will provide is **150 FTE** from operations and a **1000 FTE** at the peak of construction
- Planned year of the data centre to be operational is **2017**



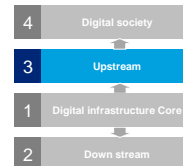
- In 2011 Softlayer, an IBM company, chose NL as its European headquarters
- It built a large data centre and invested over **€100 mln**
- Softlayer chose NL because of its fast connections to the rest of Europe

Sources: NFIA, NRC website; Parool website

Hosting-partijen NL: e.g. de DHPA deelnemers



As a result NL is hosting the top of the world's technology and Internet companies as gateway to Europe and the Internet



2014 Report

Twitter

Online social networking service with more than 271 mln active users with \$664 mln revenue and 3,300 employees globally

Akamai

One of world's largest providers of content delivery networks with \$1.5 bn revenue and 4,200 employees globally

CDNetworks

Full-service delivery network of Internet content and applications, accelerating more than 40,000 websites globally

Netflix

Provider of on-demand Internet streaming media, present in over 40 countries with \$4.3 bn revenue and 2,000 employees globally

Softlayer

One of the world's largest cloud infrastructure providers, owned by IBM with over 80,000 servers and 26,000 customers



Amazon

One of the largest commerce companies and major provider of cloud computing services with over \$74 bn revenue and 132,600 employees globally

Facebook

The largest online social networking service with more than 1.3 bn active users, \$7.9 bn revenue and 8,400 employees worldwide

Go Daddy

One largest domain registrars and web hosting companies in the world with over \$1.1 bn revenue and 4,000 employees worldwide

Google

Corporation specialized in Internet-related services and products with around \$60 bn revenue and over 55,000 employees

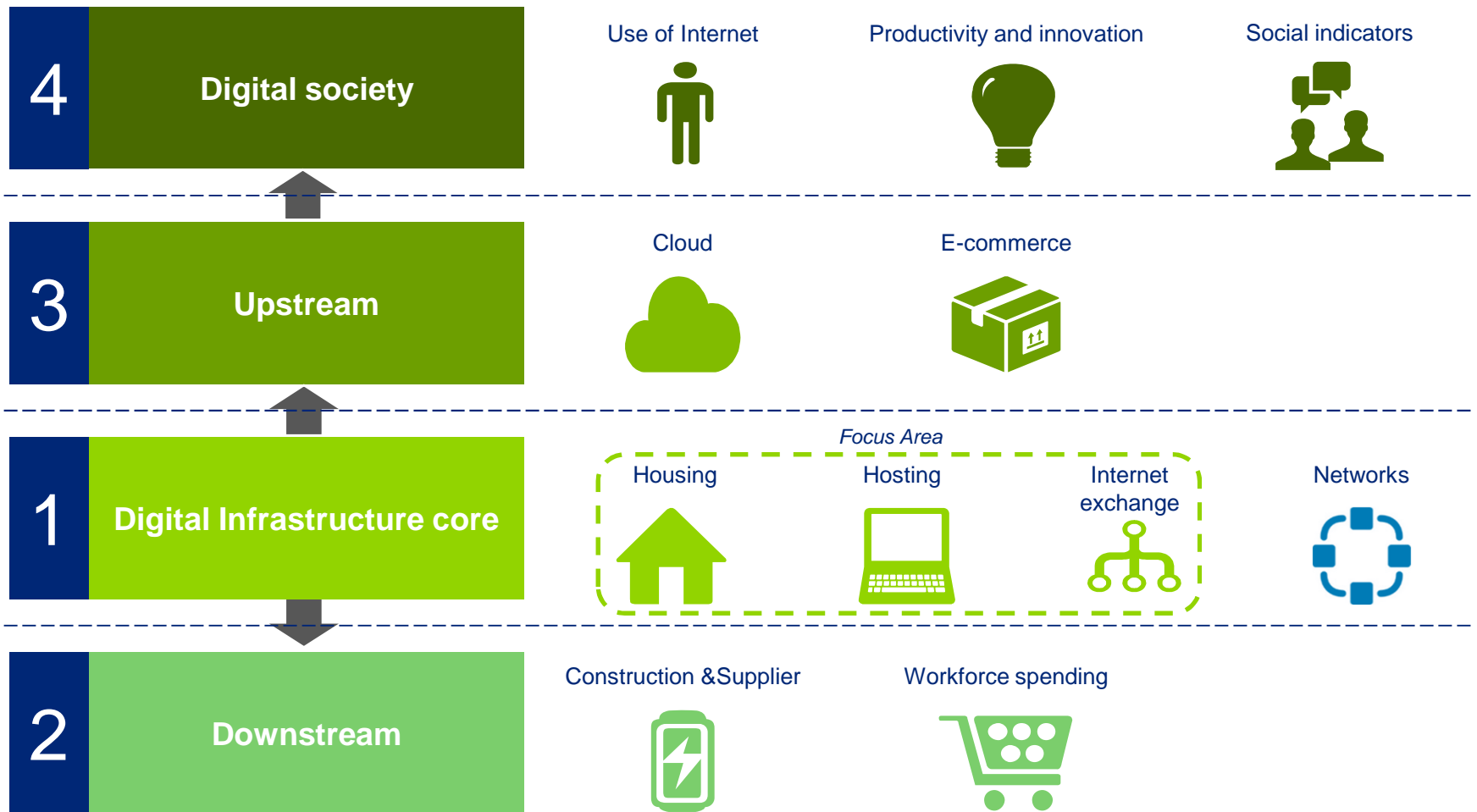
Microsoft

Corporation that develops, manufactures, licenses, supports and sells e.g. computer software, consumer electronics with over \$86 bn revenue

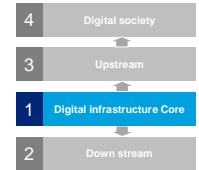
Source: AMS-IX Report

The contribution of the Digital Infrastructure sector is a combination of four effects: Core, Downstream, Upstream and Digital society

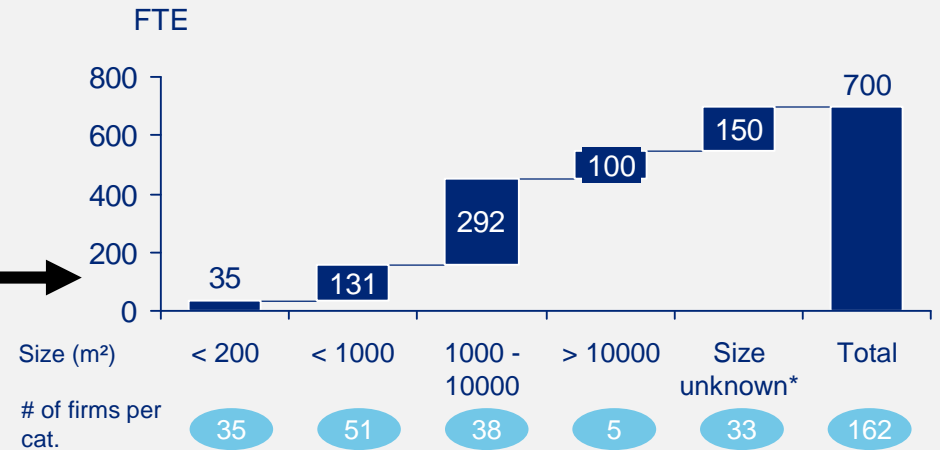
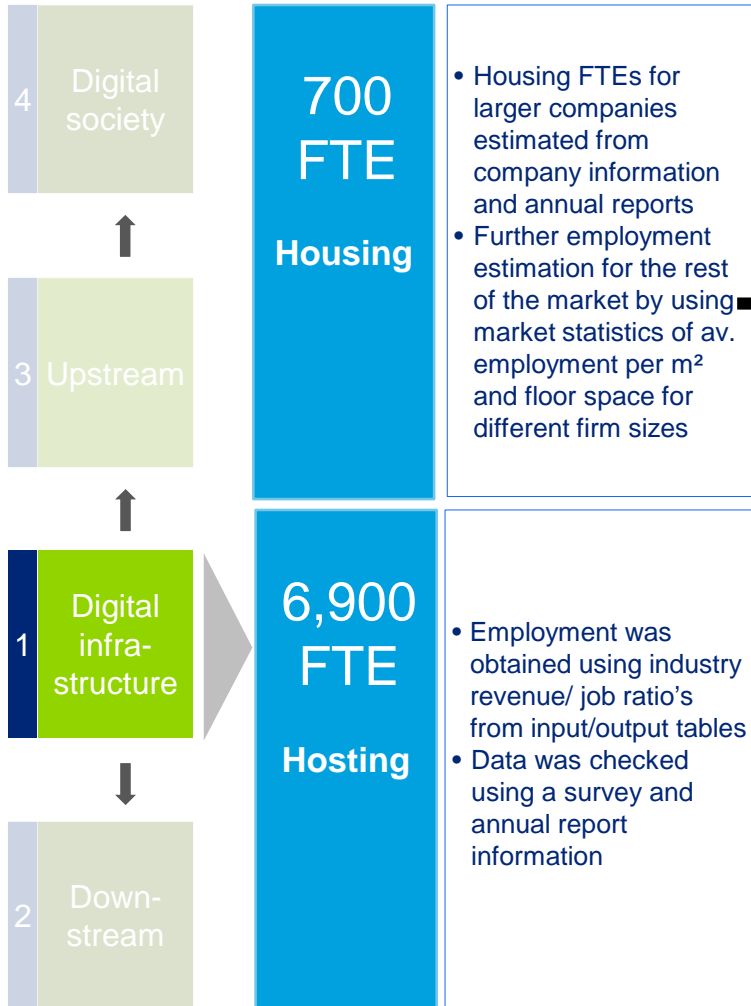
2014 Report



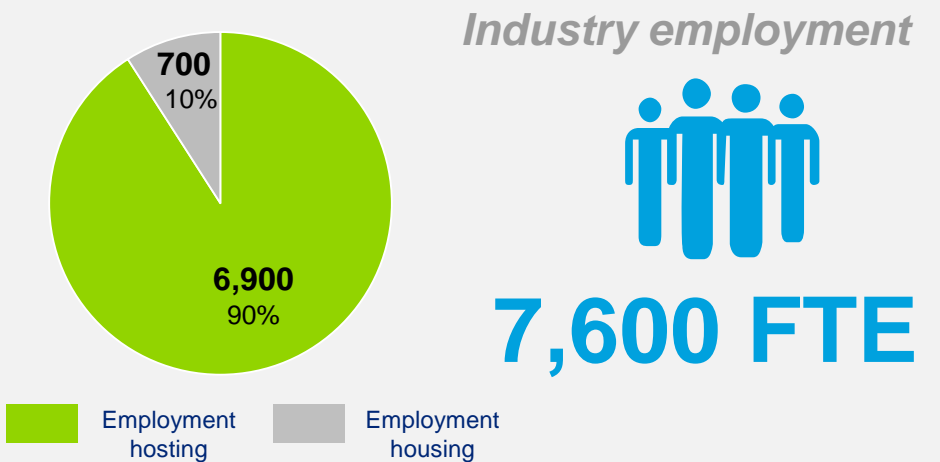
Direct employment in the Digital Infrastructure sector adds up to 7,600 FTE, of which 90% in the hosting sector and 10% in capital intensive housing



2014 Report



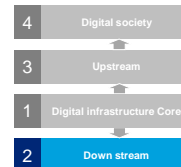
Size (m ²)	# of firms per cat.
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< 1000	51
1000 - 10000	38
> 10000	5
Size unknown*	33
Total	162



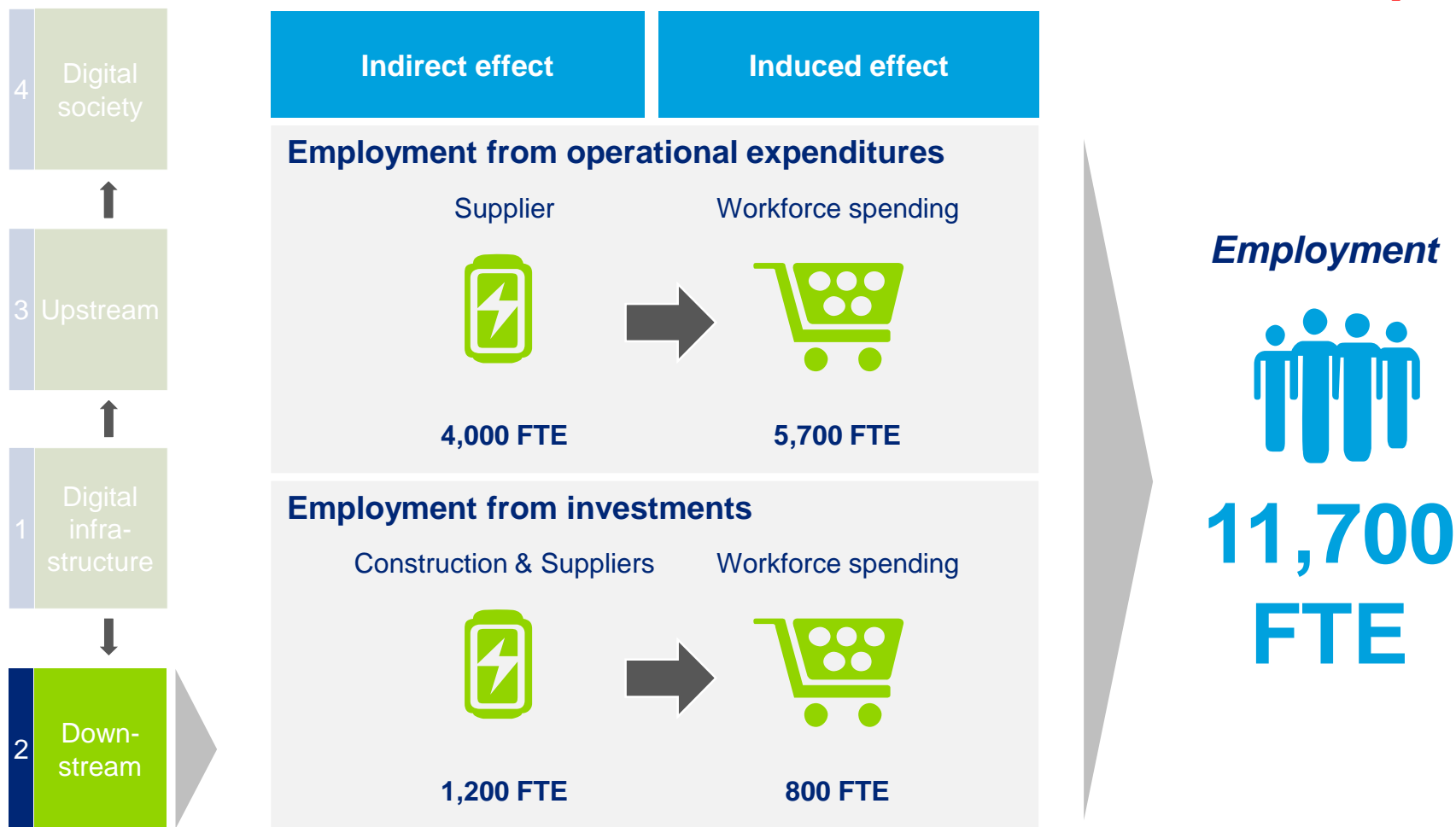
Note: numbers are based on 2013

Sources: Annual reports; Datacentrum Gids website; Gartner IT Services Report; CBS database; Deloitte analysis

The indirect and induced effect of the Digital Infrastructure sector add up to an employment of 11,700 FTE

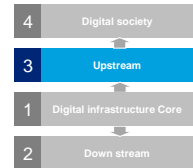


2014 Report

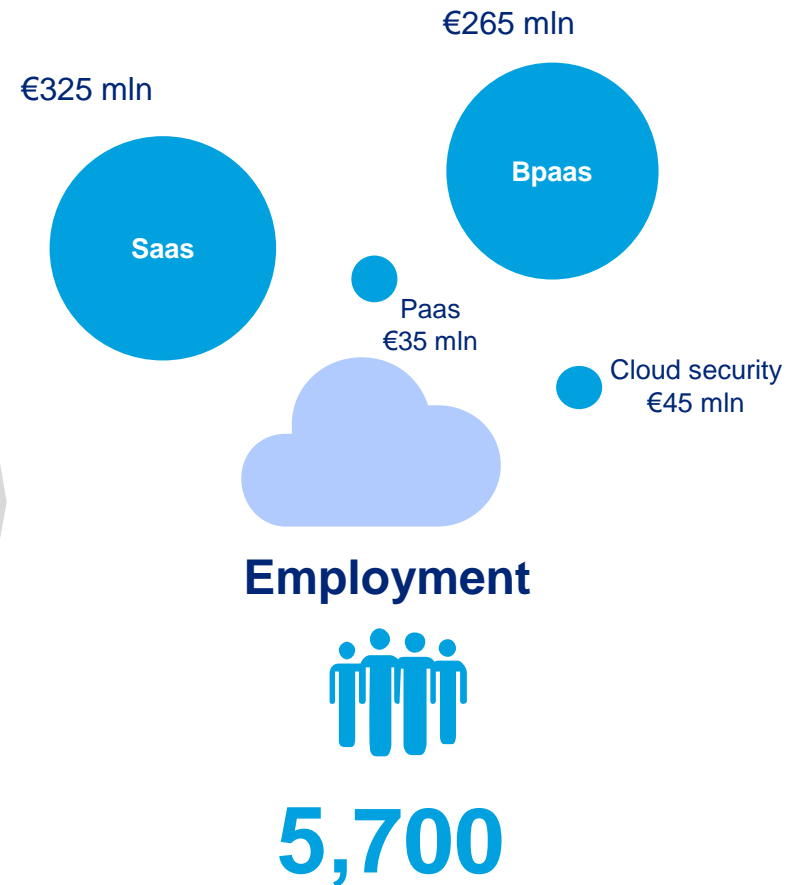
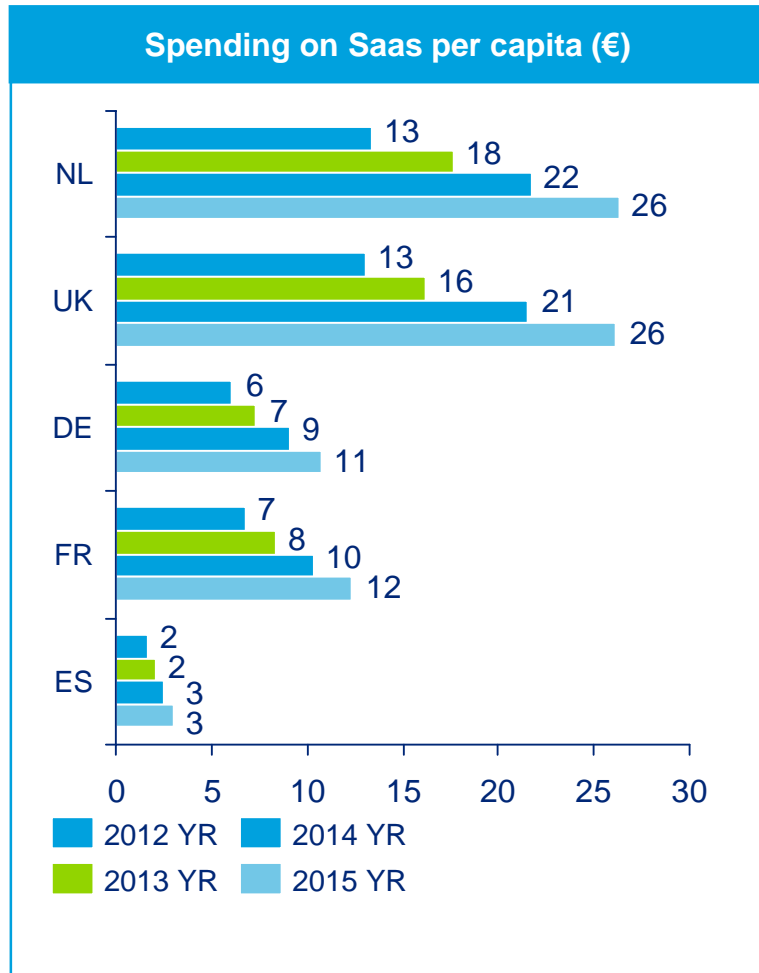


Sources: CBS Database; Deloitte analysis

SaaS and PaaS are two of the Digital Infrastructure's closest relatives, generating 5,700 jobs in the Dutch economy

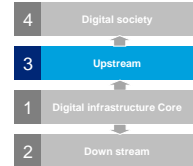


2014 Report

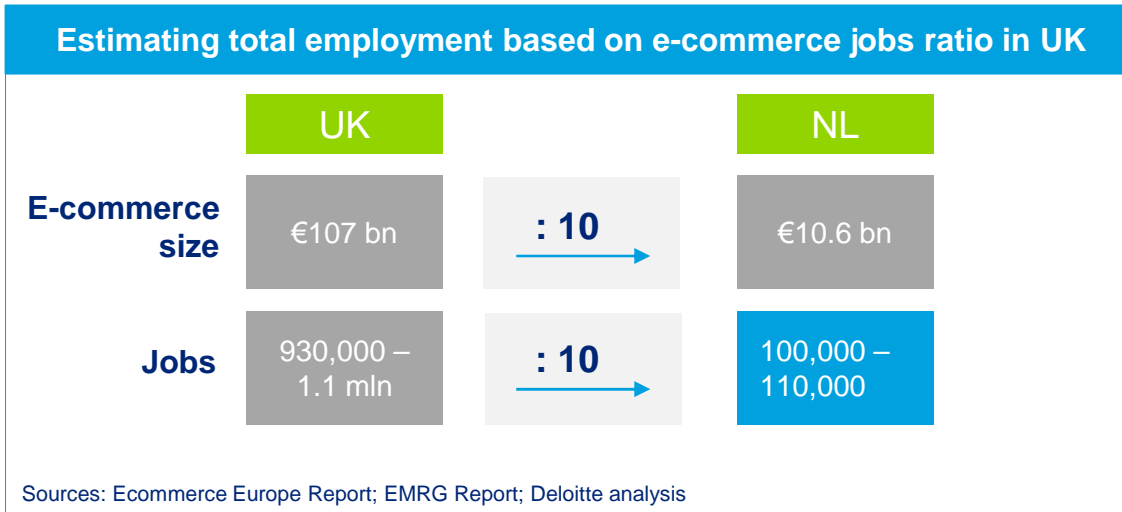


Sources: Gartner IT Spending Forecast Report; CBS Database; Deloitte analysis

The employment generated by e-commerce in NL is estimated between 100,000 and 140,000



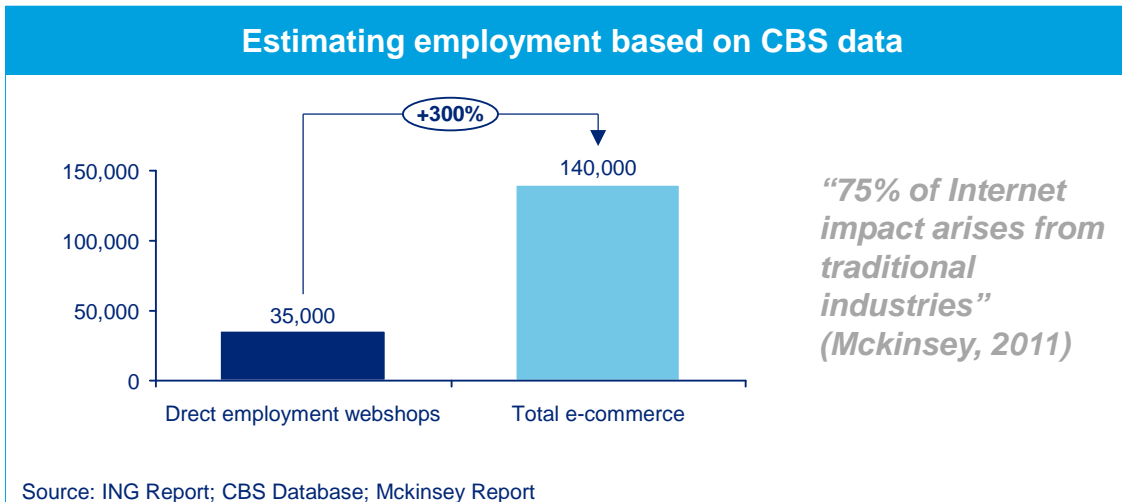
2014 Report



Employment

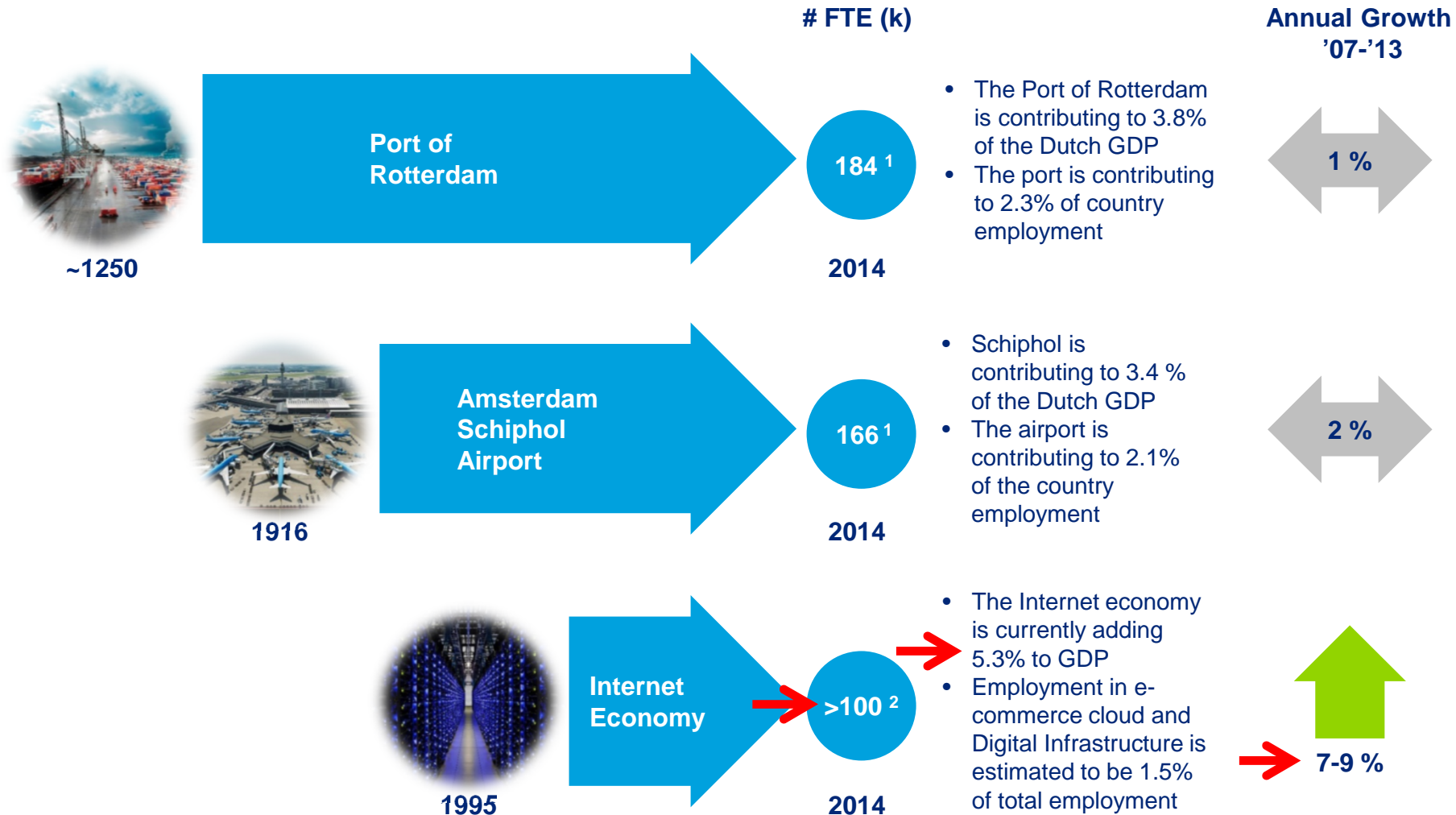
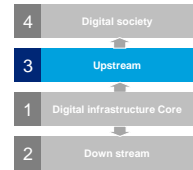


100,000 -140,000



Given its age, the Internet economy has already a large impact on the Dutch economy and is growing at a rapid pace relative to other growth enablers

2014 Report



1: Direct + Indirect FTE; 2: Direct FTE in E-commerce and cloud services
 Sources: RHV Erasmus University; Ecquants Report

<https://digitale-infrastructuur.nl/>



Digitale Infrastructuur Nederland





Thema's DINL



Voorlichting

Uitleg en duiding van thema's naar politiek, overheid, bedrijfsleven en publiek. Versterken van de positie van Nederland als vestigingsplaats voor online enterprises.



Onderwijs

Stimuleren van kennis en vaardigheden die bijdragen aan innovatie en een verdere ontwikkeling van de online sector.



Vertrouwen

Stimuleren van veiligheid en continuïteit en bijdragen aan het bestrijden van Cybercrime.



Maatschappij

Verbinden van stakeholders en bijdragen aan verantwoordelijkheid naar maatschappij, milieu en werknemers.



Voorlichting

Versterken van de positie van Nederland als vestigingsplaats voor online enterprises.

Digital Gateway of Europe

HOME FACTS SUCCESS START CALENDAR NEWS MORE INFO



The Dutch Digital Infrastructure: The online distribution system to the rest of the world

FACTS

Global players in the digital space, including Microsoft, Cisco, Tata, Infosys, Huawei, Oracle, Intel, IBM, Verizon and Google have chosen the Netherlands for their activities. Digital companies choose the Netherlands to locate their headquarters, data centers, sales and marketing offices, and/or distribution centers because the Netherlands is known as a digital gateway to Europe.

The Dutch are also famous for innovation, a reliable and comprehensive infrastructure, an open and business friendly orientation, a highly educated and multilingual workforce, and an advantageous tax structure. But those are only a few reasons why the Netherlands appeals to such diverse industry giants in the IT services, software, hardware, cloud, Internet, and data industries.

Why invest in Holland?

Because Holland offers...

- a strategic location in Europe
- a competitive fiscal climate
- a superior logistics and technology infrastructure
- a conducive innovation environment
- an international business environment
- a solid workforce
- an attractive quality of life
- a "Highly Skilled Migrant Visa" for international talent

o.a. Handelsmissies en 'Holland Paviljoens' op beurzen



zoals...



Voorlichting

Uitleg en duiding van thema's naar politiek, overheid, bedrijfsleven en publiek.



Vertrouwen

Stimuleren van veiligheid en continuïteit en bijdragen aan het bestrijden van Cybercrime.

HOLLAND STRIKES BACK

Presentaties Sfeerimpressie Programma Sprekers Partners Locatie Alert Online

HOLLAND STRIKES BACK
Dutch Initiatives against Cyber Attacks and Abuse
28 OKTOBER 2014
AMERSFOORT

Een 8+ voor Holland Strikes Back

In de zomer van 2014 bedachten wij een inhoudelijk congres over Nederlandse IT initiatieven tegen cybercrime, en wat pakte dat goed uit. Met een sterk inhoudelijk programma, korte to-the-point verhalen van o.a. Dick Schoof, Michiel Leenaars, Benno Overeinder en Barend Sluijter en een record aantal bezoekers hebben wij genoten van deze dag.

Het overgrote deel van de bezoekers geeft aan volgend jaar terug te willen komen, daarom gaan wij op zoek naar nieuwe verhalen en innovatie omtrent cybercrime, mocht je een bijdrage willen leveren in 2015, neem dan contact met ons op.

Graag tot volgend jaar!

HET NEDERLANDSE OFFENSIEF TEGEN CYBER CRIME

Volgende Holland Strikes Back: dinsdag 27 oktober in Den Haag !

<http://www.hollandstrikesback.nl/>



zoals...



Vertrouwen

Stimuleren van veiligheid en continuïteit en bijdragen aan het bestrijden van Cybercrime.



Maatschappij

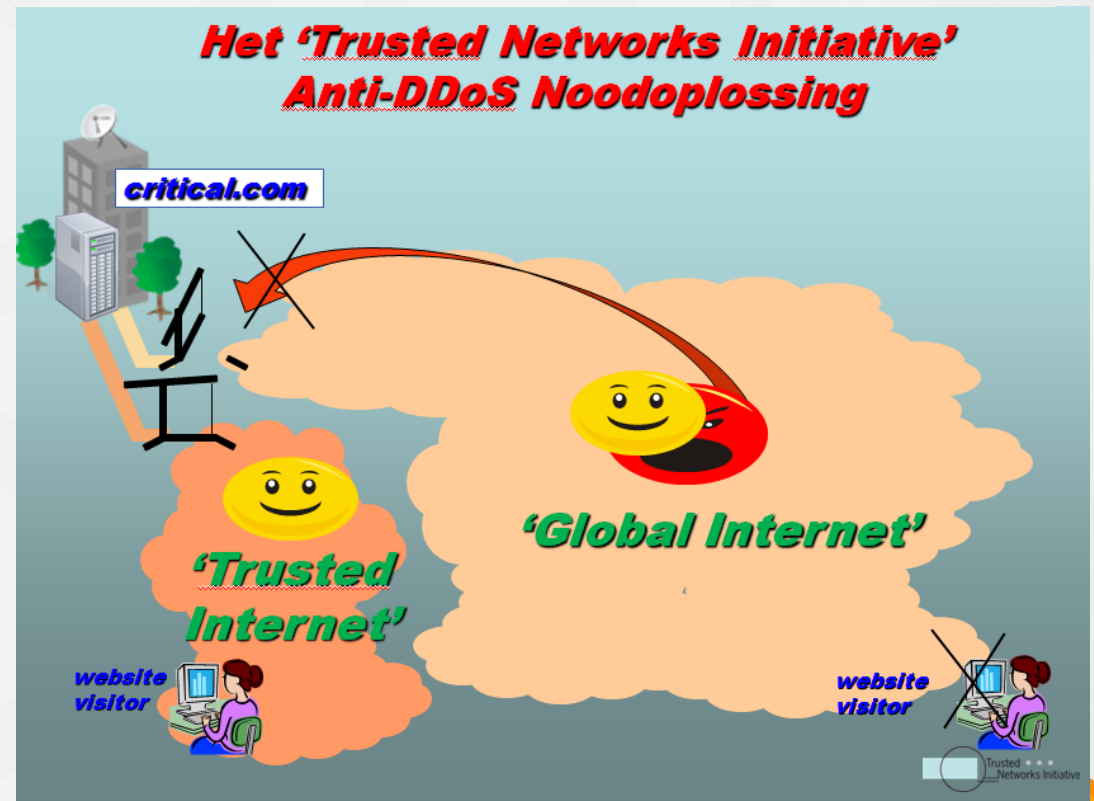
Verbinden van stakeholders en bijdragen aan verantwoordelijkheid naar maatschappij, milieu en werknemers.



Een AntiDDoS noodoplossing voor vitale diensten

Samenwerking tussen

- Vitale websites & hosts
- Access netwerken
- Internet Exchanges
- Diverse instituten en overheid



<http://www.trustednetworksinitiative.nl>





Michiel....