

GlobalRoamer



The On-Demand World-Wide Test Platform for QoS and Roaming

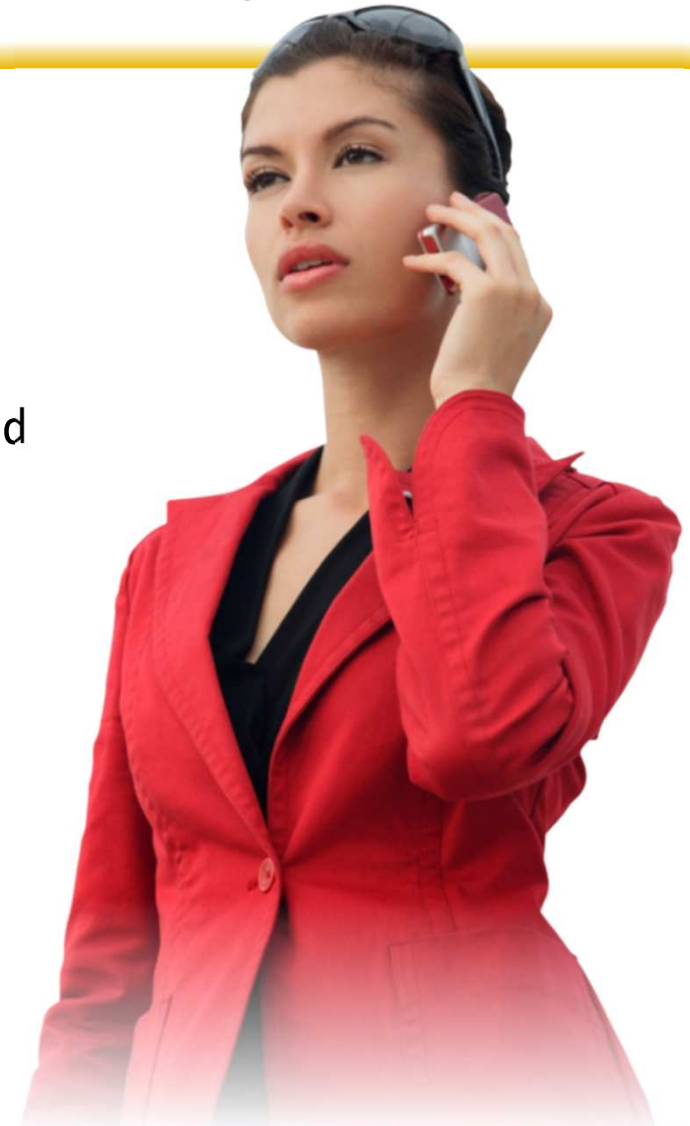


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Benefits of GlobalRoamer

- Automated active end-to-end testing and monitoring in mobile, fixed and IP networks
- Real-time reporting & alarming
- Global testing network covering 80% of the world
- Access to SIGOS SIM Pool
- Accessible from anywhere via a web interface
- Independent of time zones
- Individual definitions and tests possible
- Wide array of GlobalRoamer test services



Agenda

Introducing GlobalRoamer

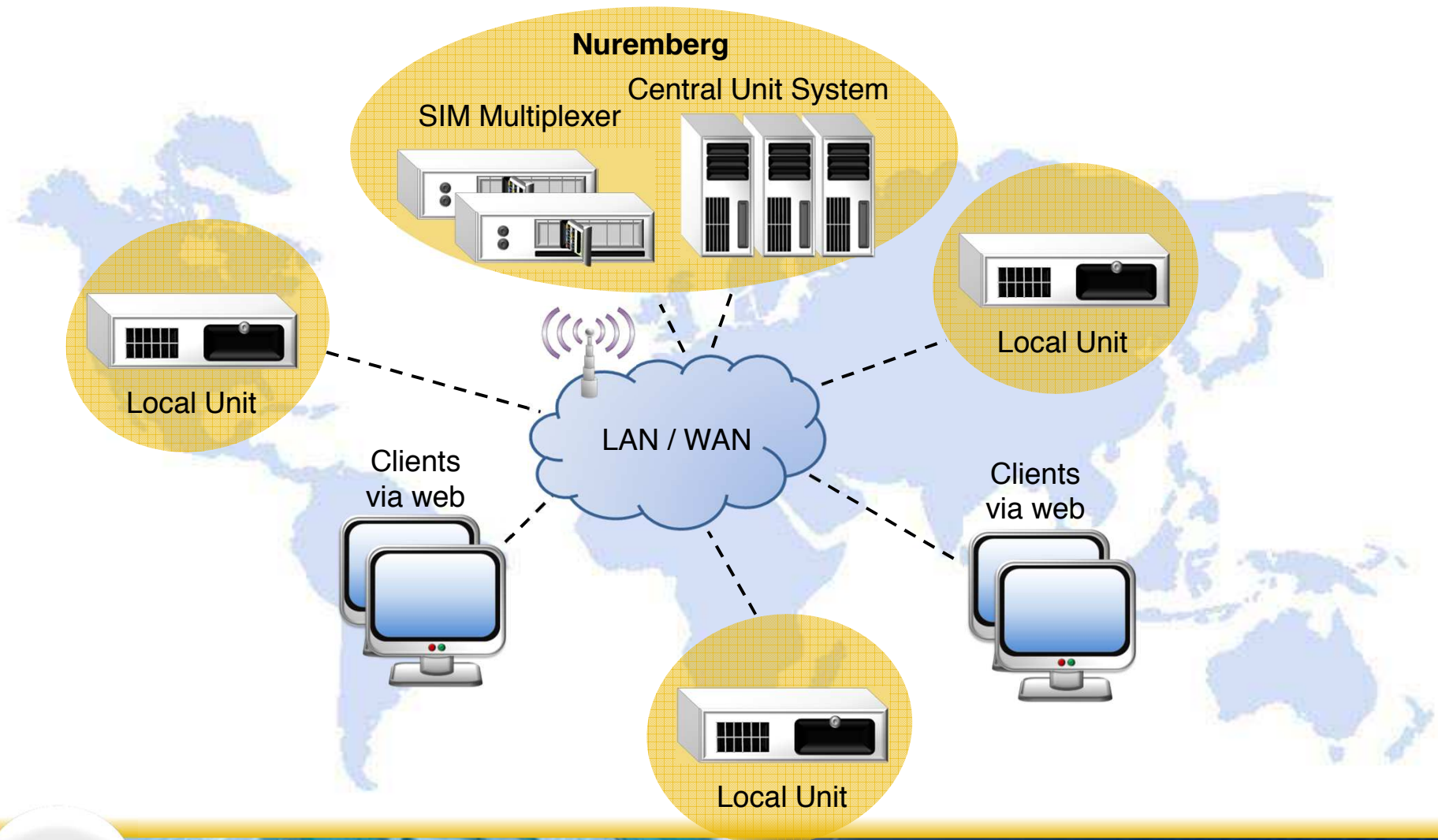
Customer References

Use Cases

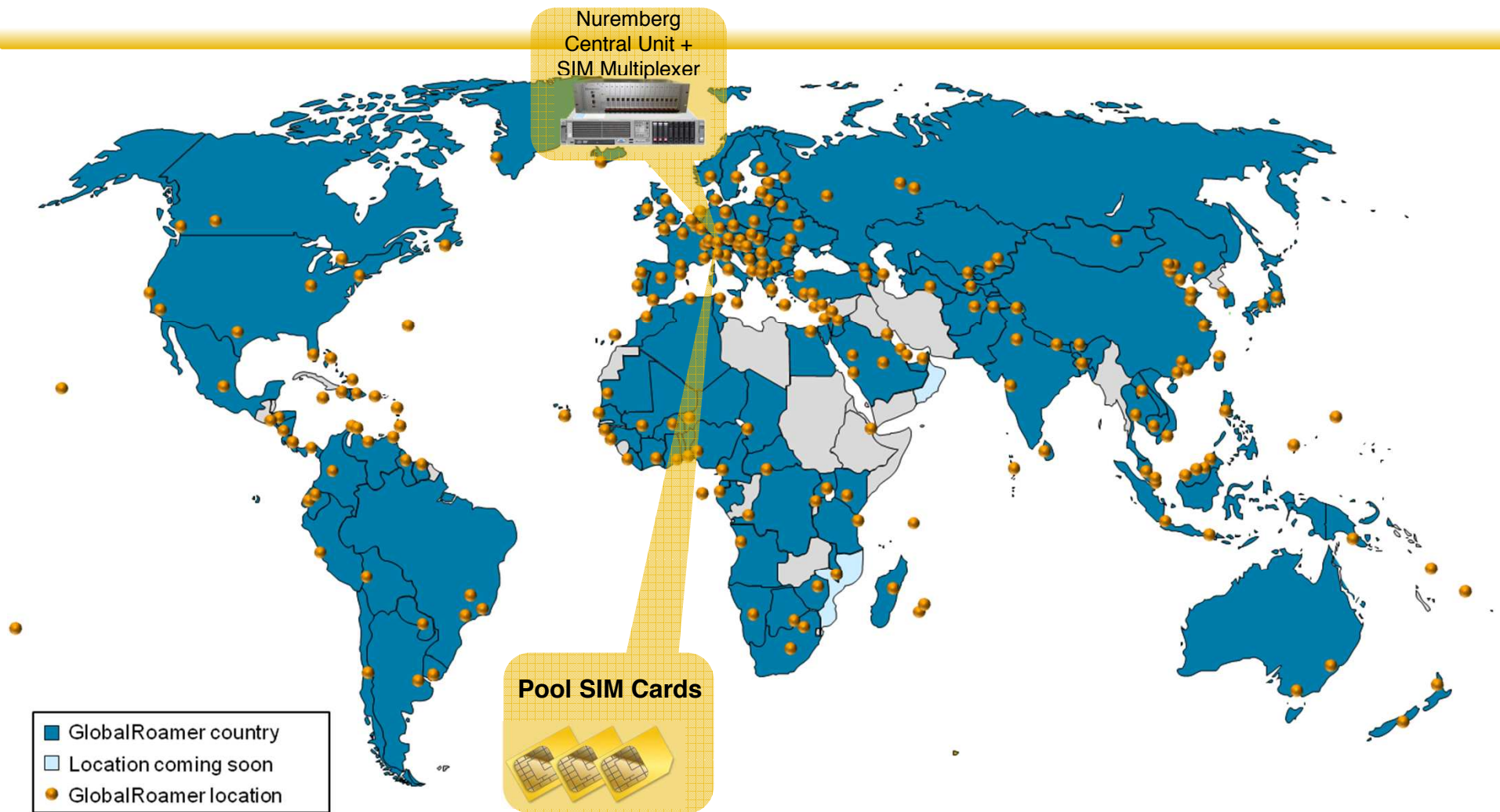
Summary



Testing everywhere



GlobalRoamer Locations



GlobalRoamer Current Footprint

174

- Countries

218

- Locations

573

- Networks accessible

332

- Pool SIM cards

309

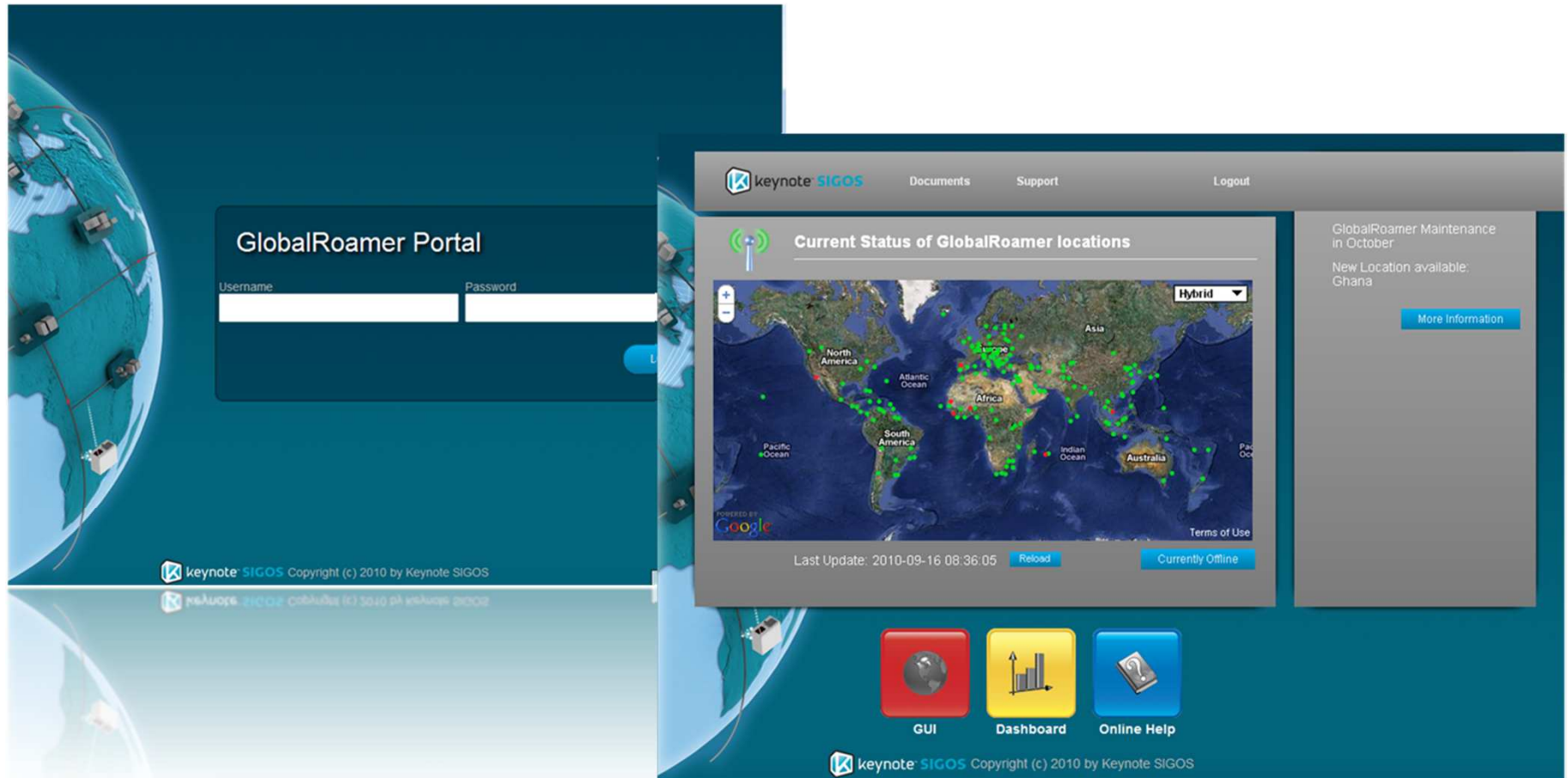
- Operators



GlobalRoamer active end-to-end testing



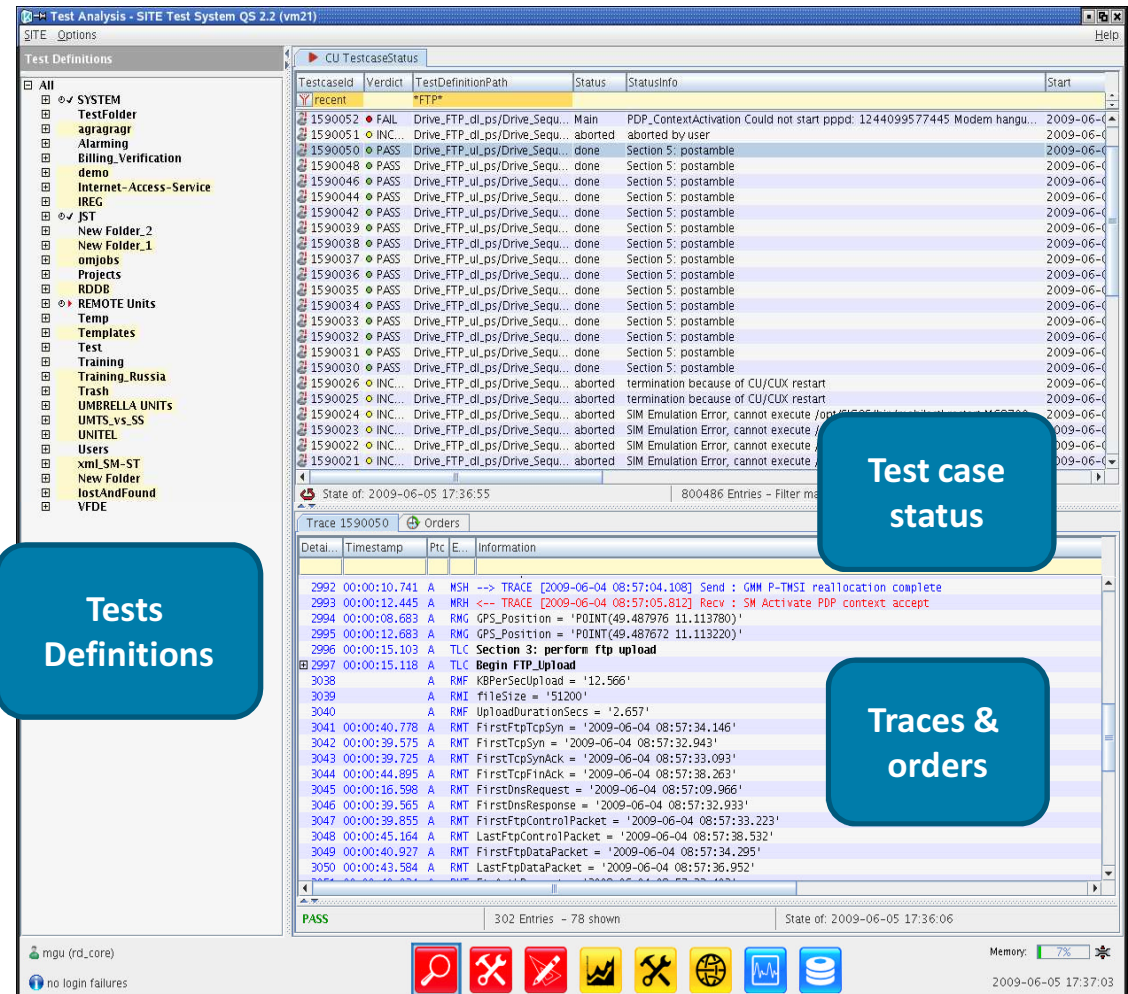
Web Portal for GlobalRoamer Login



The screenshot displays the GlobalRoamer Portal interface. On the left, a login section titled "GlobalRoamer Portal" features input fields for "Username" and "Password". The main content area is divided into two columns. The left column, titled "Current Status of GlobalRoamer locations", contains a world map with green location markers, a "Hybrid" map style selector, and a "Last Update: 2010-09-16 08:36:05" timestamp. The right column contains a maintenance notice: "GlobalRoamer Maintenance in October" and "New Location available: Ghana", with a "More Information" link. At the bottom, three buttons labeled "GUI", "Dashboard", and "Online Help" are visible. The footer includes the "keynote SIGOS" logo and copyright text: "Copyright (c) 2010 by Keynote SIGOS".

Graphical User Interface

- User friendly system
- WEB Interface: easy access via internet
- XML interface: integration for SITE



Test Definitions

TestcaseStatus

TestcaseId	Verdict	TestDefinitionPath	Status	StatusInfo	Start
1590052	FAIL	Drive_FTP_dLps/Drive_Sequ...	Main	PDP_ContextActivation Could not start pppd: 1244099577445 Modem hang...	2009-06-...
1590051	INC...	Drive_FTP_dLps/Drive_Sequ...	aborted	aborted by user	2009-06-...
1590050	PASS	Drive_FTP_uLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590048	PASS	Drive_FTP_uLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590046	PASS	Drive_FTP_uLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590044	PASS	Drive_FTP_uLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590042	PASS	Drive_FTP_uLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590039	PASS	Drive_FTP_uLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590038	PASS	Drive_FTP_dLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590037	PASS	Drive_FTP_uLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590036	PASS	Drive_FTP_dLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590035	PASS	Drive_FTP_uLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590034	PASS	Drive_FTP_dLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590033	PASS	Drive_FTP_uLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590032	PASS	Drive_FTP_dLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590031	PASS	Drive_FTP_uLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590030	PASS	Drive_FTP_dLps/Drive_Sequ...	done	Section 5: postamble	2009-06-...
1590026	INC...	Drive_FTP_dLps/Drive_Sequ...	aborted	termination because of CU/CUX restart	2009-06-...
1590025	INC...	Drive_FTP_dLps/Drive_Sequ...	aborted	termination because of CU/CUX restart	2009-06-...
1590024	INC...	Drive_FTP_dLps/Drive_Sequ...	aborted	SIM Emulation Error, cannot execute /opt/...	2009-06-...
1590023	INC...	Drive_FTP_dLps/Drive_Sequ...	aborted	SIM Emulation Error, cannot execute /opt/...	2009-06-...
1590022	INC...	Drive_FTP_dLps/Drive_Sequ...	aborted	SIM Emulation Error, cannot execute /opt/...	2009-06-...
1590021	INC...	Drive_FTP_dLps/Drive_Sequ...	aborted	SIM Emulation Error, cannot execute /opt/...	2009-06-...

Traces & orders

Trace 1590050

Detail...	Timestamp	Ptc	E...	Information
2992	00:00:10.741	A	MSH	--> TRACE [2009-06-04 08:57:04.108] Send : GMM P-TMSI reallocation complete
2993	00:00:12.445	A	MRH	<-- TRACE [2009-06-04 08:57:05.812] Recv : SM Activate PDP context accept
2994	00:00:08.683	A	RMG	GPS_Position = 'POINT(49,487976 11.113780)'
2995	00:00:12.683	A	RMG	GPS_Position = 'POINT(49,487672 11.113220)'
2996	00:00:15.103	A	TLC	Section 3: perform ftp upload
2997	00:00:15.118	A	TLC	Begin FTP Upload
3038		A	RMF	KBPerSecUpload = '12.566'
3039		A	RMI	fileSize = '51200'
3040		A	RMF	UploadDurationSecs = '2.657'
3041	00:00:40.778	A	RMT	FirstFtpTcpSyn = '2009-06-04 08:57:34.146'
3042	00:00:39.575	A	RMT	FirstTcpSyn = '2009-06-04 08:57:32.943'
3043	00:00:39.725	A	RMT	FirstTcpSynAck = '2009-06-04 08:57:33.093'
3044	00:00:44.895	A	RMT	FirstTcpFinAck = '2009-06-04 08:57:38.263'
3045	00:00:16.598	A	RMT	FirstDnsRequest = '2009-06-04 08:57:09.966'
3046	00:00:39.565	A	RMT	FirstDnsResponse = '2009-06-04 08:57:32.933'
3047	00:00:39.855	A	RMT	FirstFtpControlPacket = '2009-06-04 08:57:33.223'
3048	00:00:45.164	A	RMT	LastFtpControlPacket = '2009-06-04 08:57:38.532'
3049	00:00:40.927	A	RMT	FirstFtpDataPacket = '2009-06-04 08:57:34.295'
3050	00:00:43.584	A	RMT	LastFtpDataPacket = '2009-06-04 08:57:36.952'

302 Entries - 78 shown

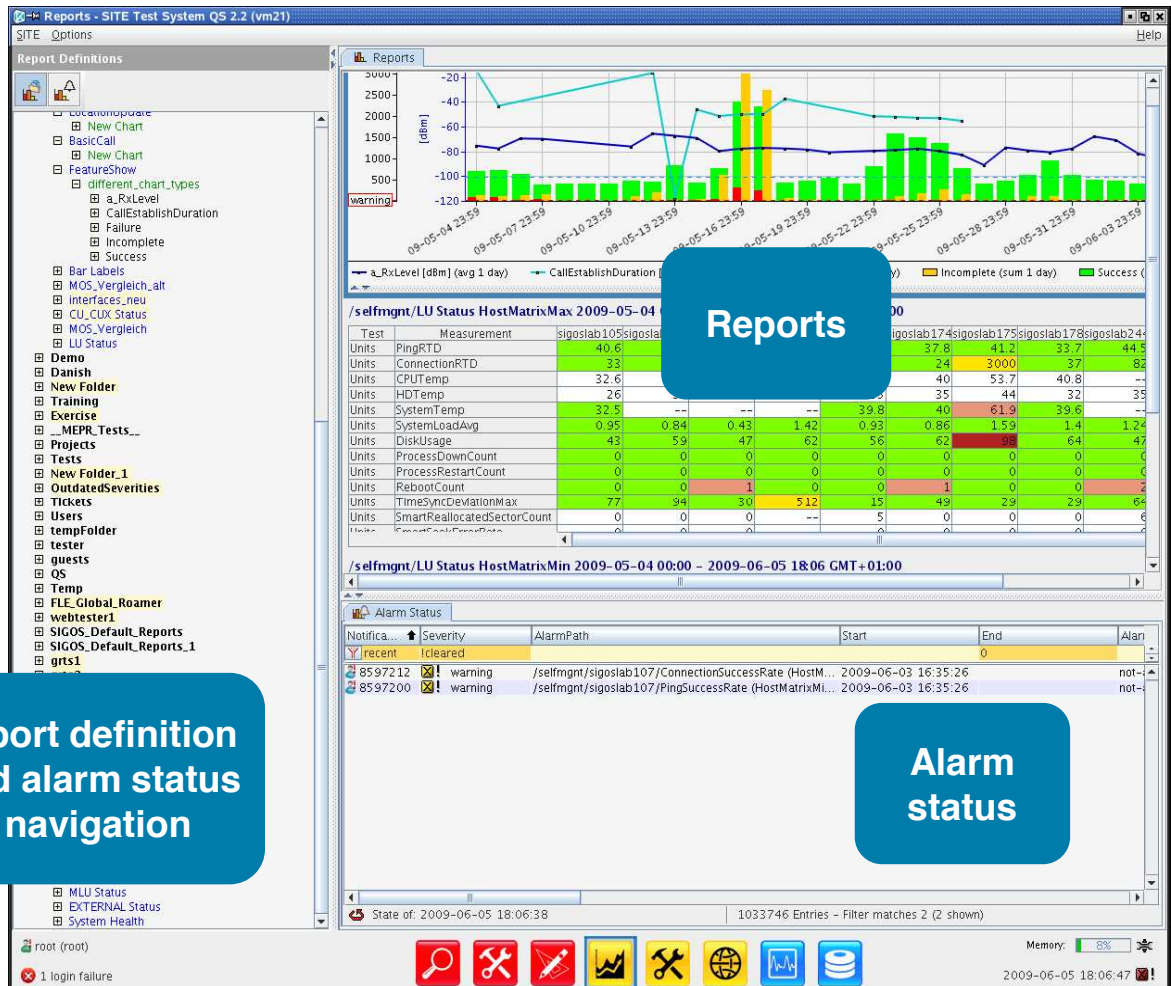
State of: 2009-06-05 17:36:06

Memory: 7%

2009-06-05 17:37:03

Reporting and Alarming

- Tree-oriented definition and scheduling
- Large libraries of test cases
- Comfortable drag-and-drop option
- Single or multiple KPIs in one chart
- Parallel display of multiple chart windows



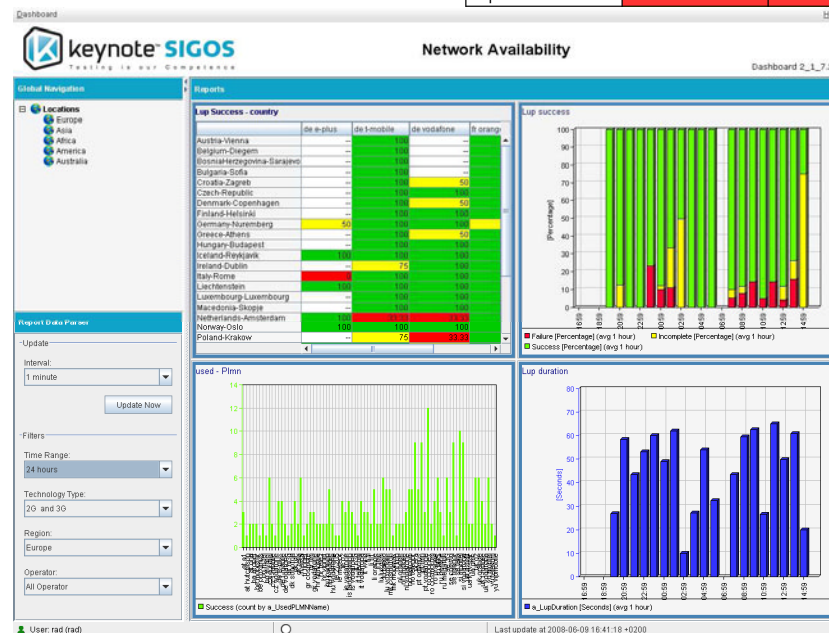
Reporting and Alarming

- Matrix Report

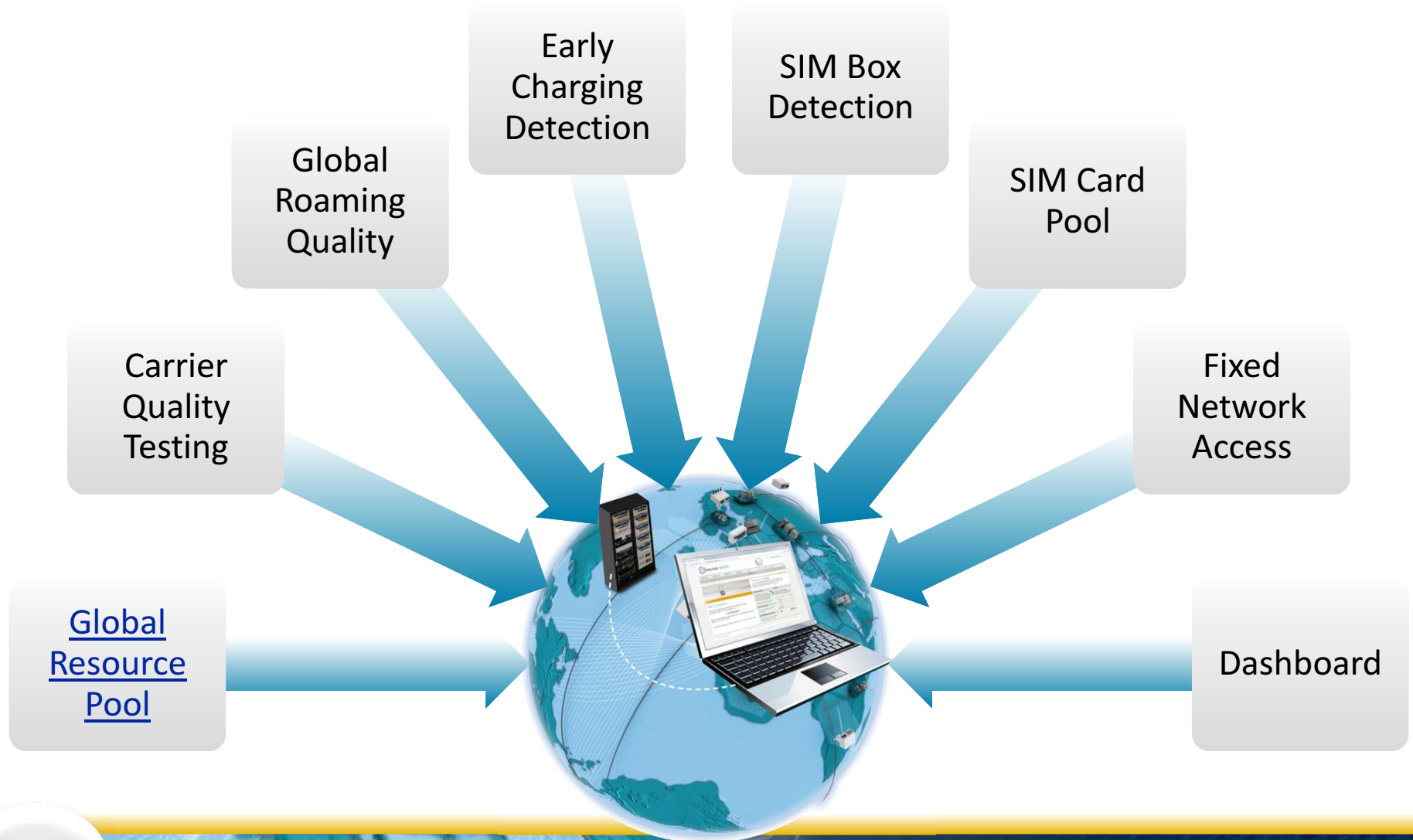
Voice Call Setup Failure Ratio

	Op 1 Group A	Op 2 Group A	Op 3 Group A	Op 4 Group A	Op 5 Group A	avg
Op UAE	1.05	0.34	27.94	0.35	1.61	5.75
Op Austria	0.69	0.67	7.72	2.86	3.15	2.9
Op Austria	7.51	1.03	0.79	1.79	3.52	3
Op Brazil	2.25	6.13	55.56	2	3.07	12.96
Op Brazil	4.49	1.89	17.62	2.48	7.28	6.53
Op Canada	0.43	0	4.76	1.82	1.75	1.56
Op China	2.89	0.65	14.52	8.42	3.25	5.67
Op Hong Kong	0.71	0	0	0.75	1.42	0.58
Op Croatia	0.78	0.76	7.29	5.31	3.91	3.55
Op Poland	1.71	0	0.78	1.92	6.29	2.16
Op Russia	3.23	4.94	9.58	1.15	4.66	4.62
Op Singapore	1.79	0	1.16	0.81	2.64	1.3
Op Thailand	9.12	13.52	25.73	1.96	5.49	10.88
	1.04	1.49	2.27	3.33	2.08	
	1.28	2.51	2.27	1.85	6.05	
	2.68	0.9	1.08	2.13	1.74	
	1.69	10.29	1.09	3.6	5.99	
	2	11.29	2.32	3.5	4.62	

- Dashboard



GlobalRoamer Extensions



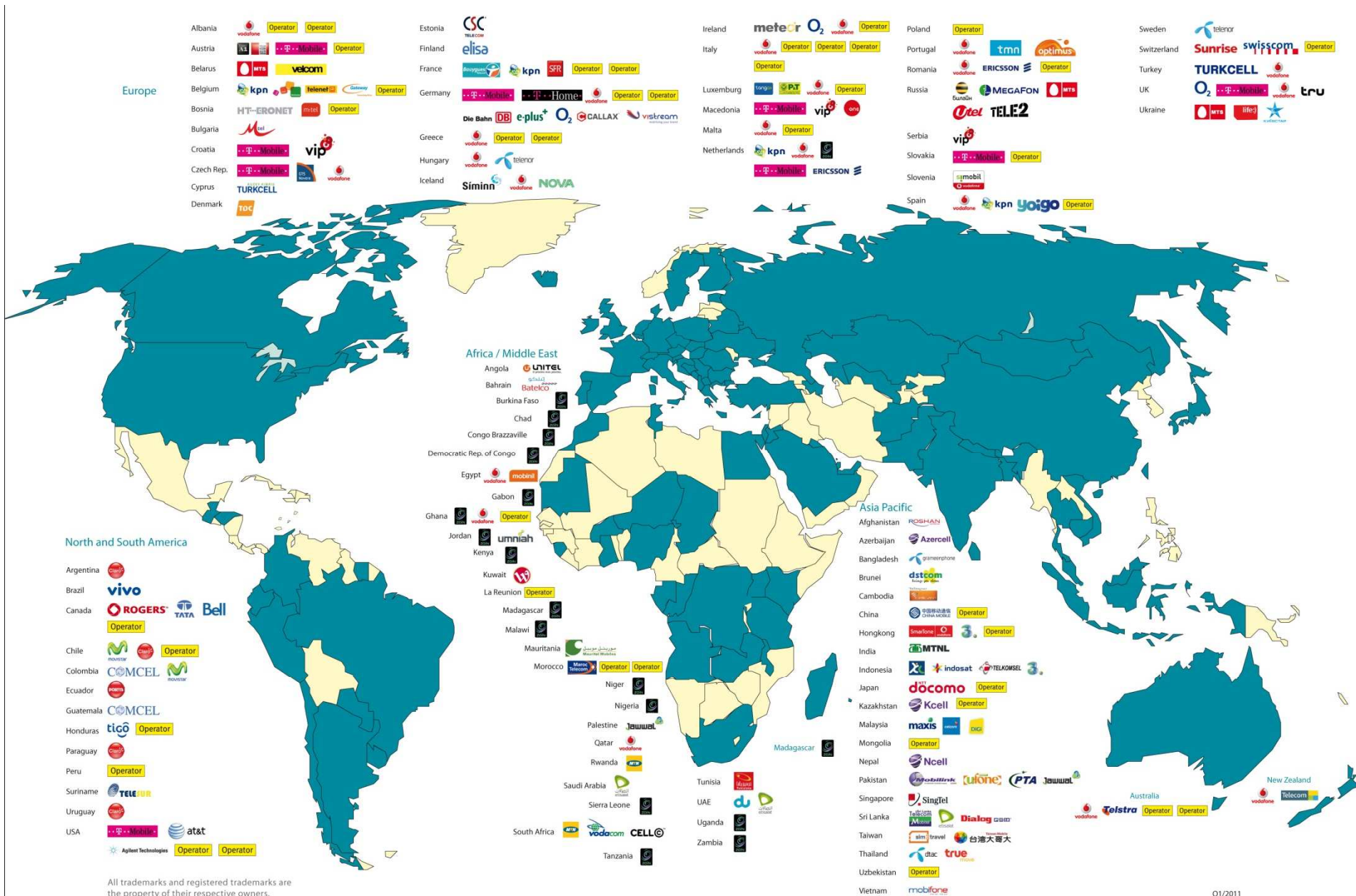
Introducing GlobalRoamer

Customer References

Use Cases

Summary





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Q1/2011

[Agenda](#)

[Details](#)

Testing is our Competence

14

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Customer feedback

“... let me say our roaming partners sleep but GlobalRoamer never does.”

Head of Roaming Dept.



“An absolutely brilliant system. We don’t know how we would manage without it”

CTO, mobile operator



“GlobalRoamer is magic”

Roaming engineer

Agenda

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Use Cases

Summary



Use Cases Overview

Service Quality Monitoring



- Periodic QoS Testing
- On-Demand Testing
- Network Diagnosis
- Drive Service Testing
- Content Testing / Handset Simulation
- Benchmarking

Roaming Testing



- Inbound Roaming Testing
- Outbound Roaming Testing
- SLA Testing according to GSMA (GRQ)
- Roaming Hubbing Testing
- Roaming Steering Testing

International Carrier Quality Testing



- Int. Carrier Quality Testing

Revenue Leakage & Fraud Detection



- SIM Box Detection
- Early Charging Detection

Revenue Assurance



- Test Call / Event Generation
- CDR Comparison Billing
- Tariff Testing
- Prepaid SIM Recharging

Fixed & IP Network Testing



- Fixed Network Testing
- IP Network Testing

Core Network Testing



- Core Network Testing

Nomadic & Indoor Testing



- Nomadic & Indoor Testing

Already 700,000
SIM boxes
detected!

Summary

- Automated active end-to-end testing and monitoring in mobile, fixed and IP networks
- Real-time reporting & alarming
- Global testing network covering 4/5 of the world
- Access to SIGOS SIM Pool
- Accessible from anywhere via a web interface
- Independent of time zones
- Individual definitions and tests possible
- Wide array of GlobalRoamer test services



Thank you!

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REALLY Reaching Your Roamers

Micro-segmented Campaign Management

Telesamana Webinar, 4 October 2012

Daniel Balas, Sales Director Latin America, Starhome GmbH

Agenda

What do you need to REACH your customers?

Sparx™ Overview

MTS Russia Success Story





Getting their Attention

Do You REALLY Reach Your Roamers?

- Do you get their attention?
- Understand their needs?
- Make them value your messages?



What Happens Today?

- “Welcome SMS” provides same generic information to all subscribers
 - No micro segmentation
 - In most cases it is:
 - An offline process
 - With minimal feedback to measure effectiveness
- ➔ Therefore...
- Messages are treated as spam and usually deleted
 - Roamers are missing out on operator’s offering and benefits

Subscribers don’t see real value

What Makes Roaming So Special?



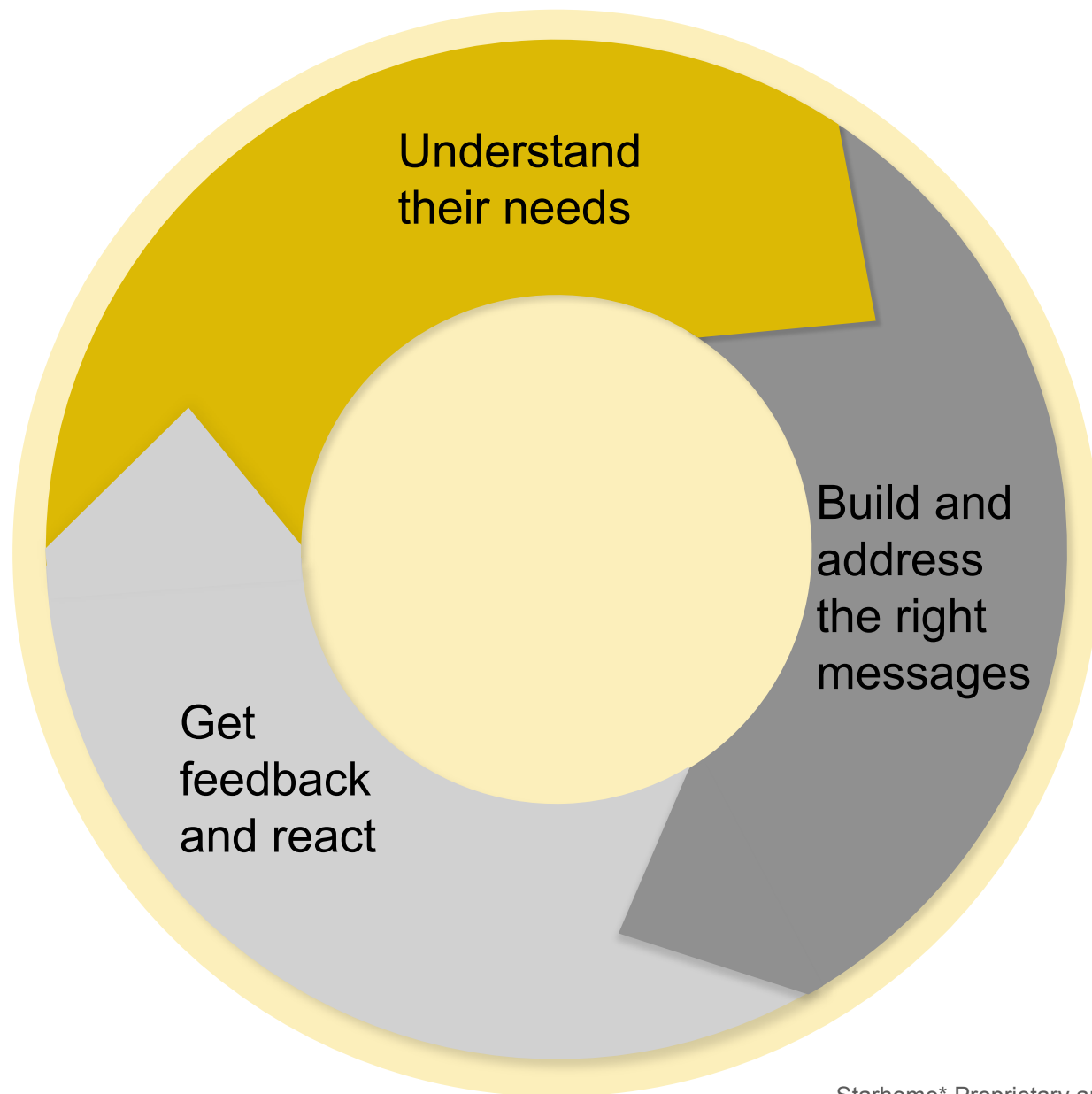
- It is a different environment
 - Country, time and language
- Still considered a premium service
 - Therefore, users spend less while roaming
- Not all services are available at roamer's destination
 - Data, prepaid etc.

Not same seamless experience as at home

Other Trends to Consider

- Mobile marketing is emerging in local markets
- Subscribers are more receptive to promotions and valuable information when roaming due to:
 - Foreign country and difficulty with local language
 - No free access to internet

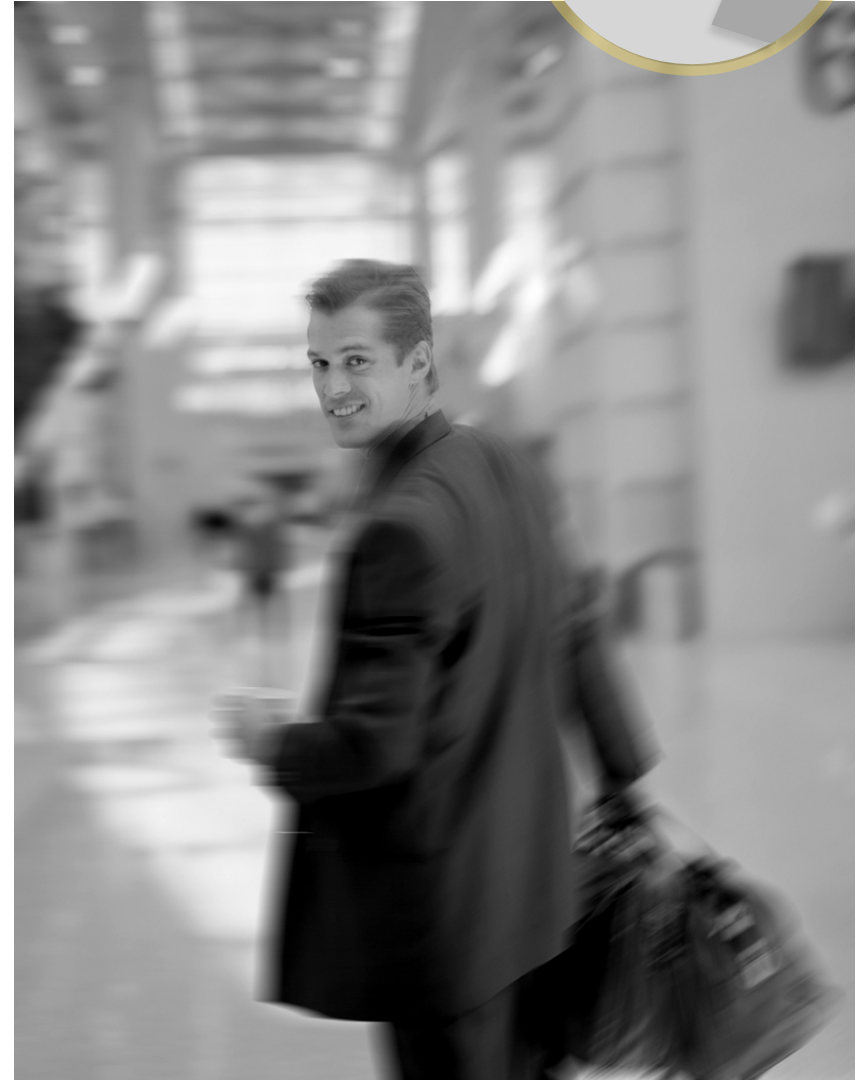




Understanding Roamers' Needs



- Treat each and every roamer as an individual
 - Build micro segmentation
 - According to their characteristics and behavioral patterns
 - How they vary through context, location and time



Characteristics of Subscribers



This is just static information

Profile

- Age, segment
(prepaid, postpaid, corporate)

Subscription & ARPU

- At home
- While abroad

'Preferred' services

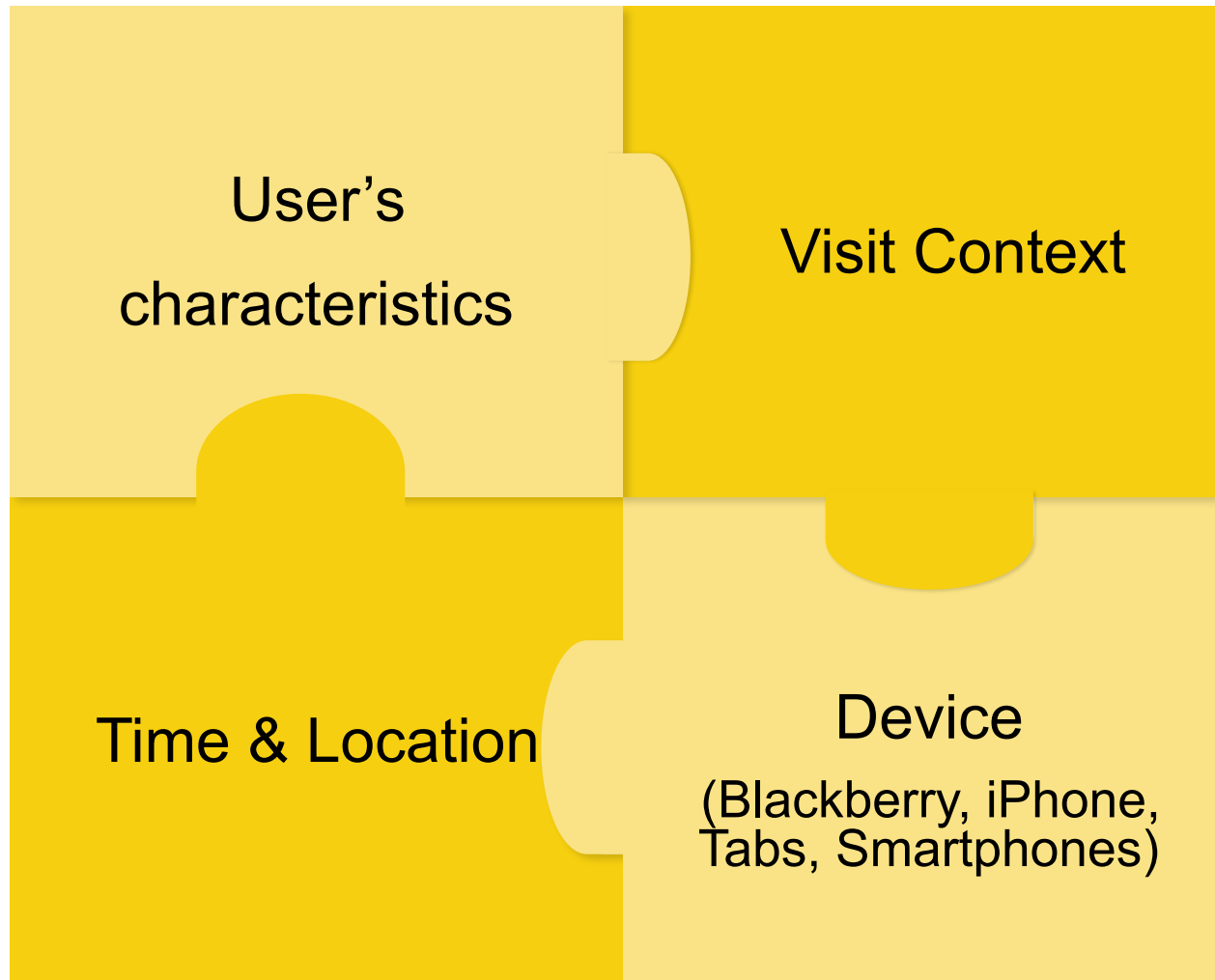
- Voice/text
- Data, corporate e-mail

Reference activities

- Last 12 months visits
- Etc.



Creating the Right “Message”



Instead of BROADCASTING...

Build and
address the
right
messages



Get Feedback and React



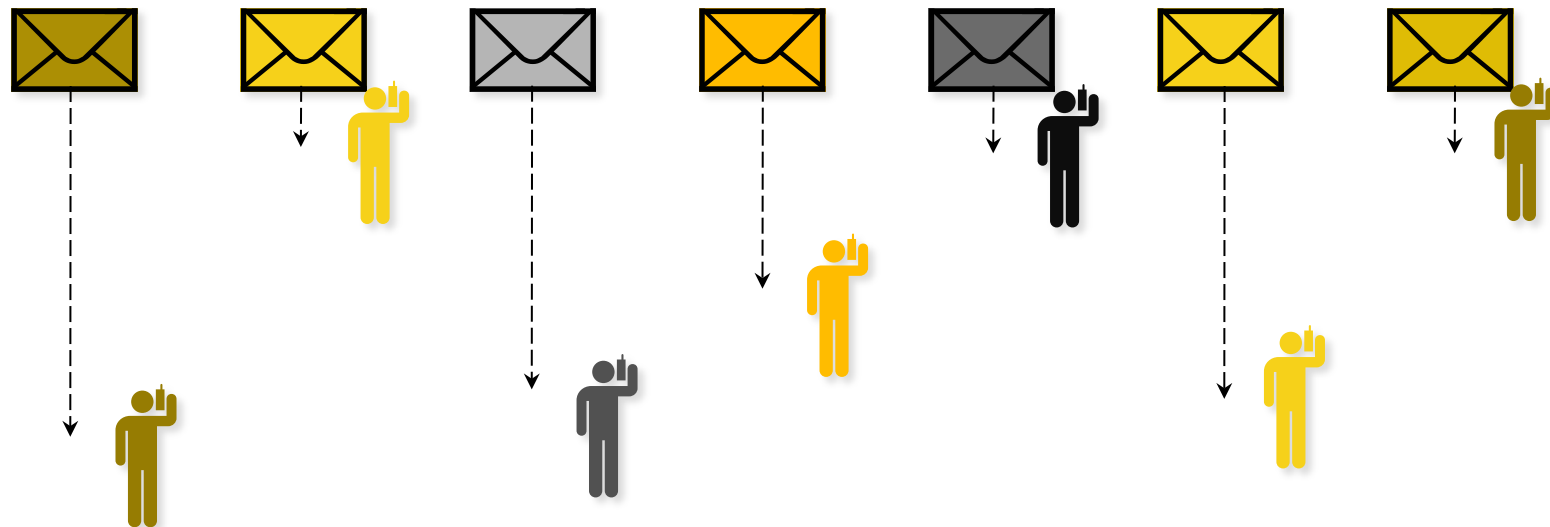
- Move from an offline to online exercise
- Understand subscribers' feedback in real-time
- Value each and every campaign by its hit-rate and success level (impact)

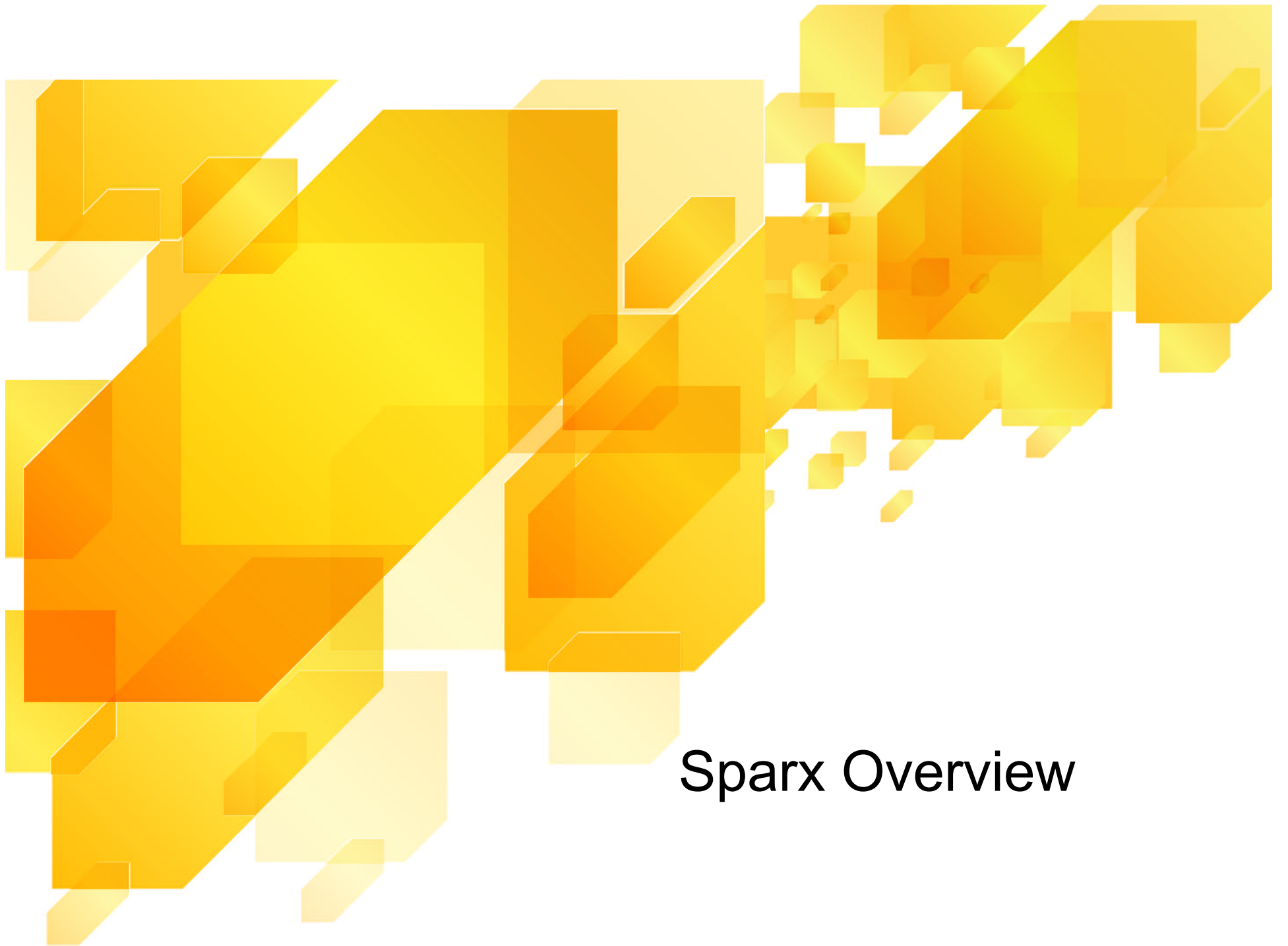
Move to real-time and capture customers attention

Move to a NARROWCAST Communication

Build and
address the
right
messages

Targeted messages increase customer satisfaction and in turn increase the success ratio of the campaign





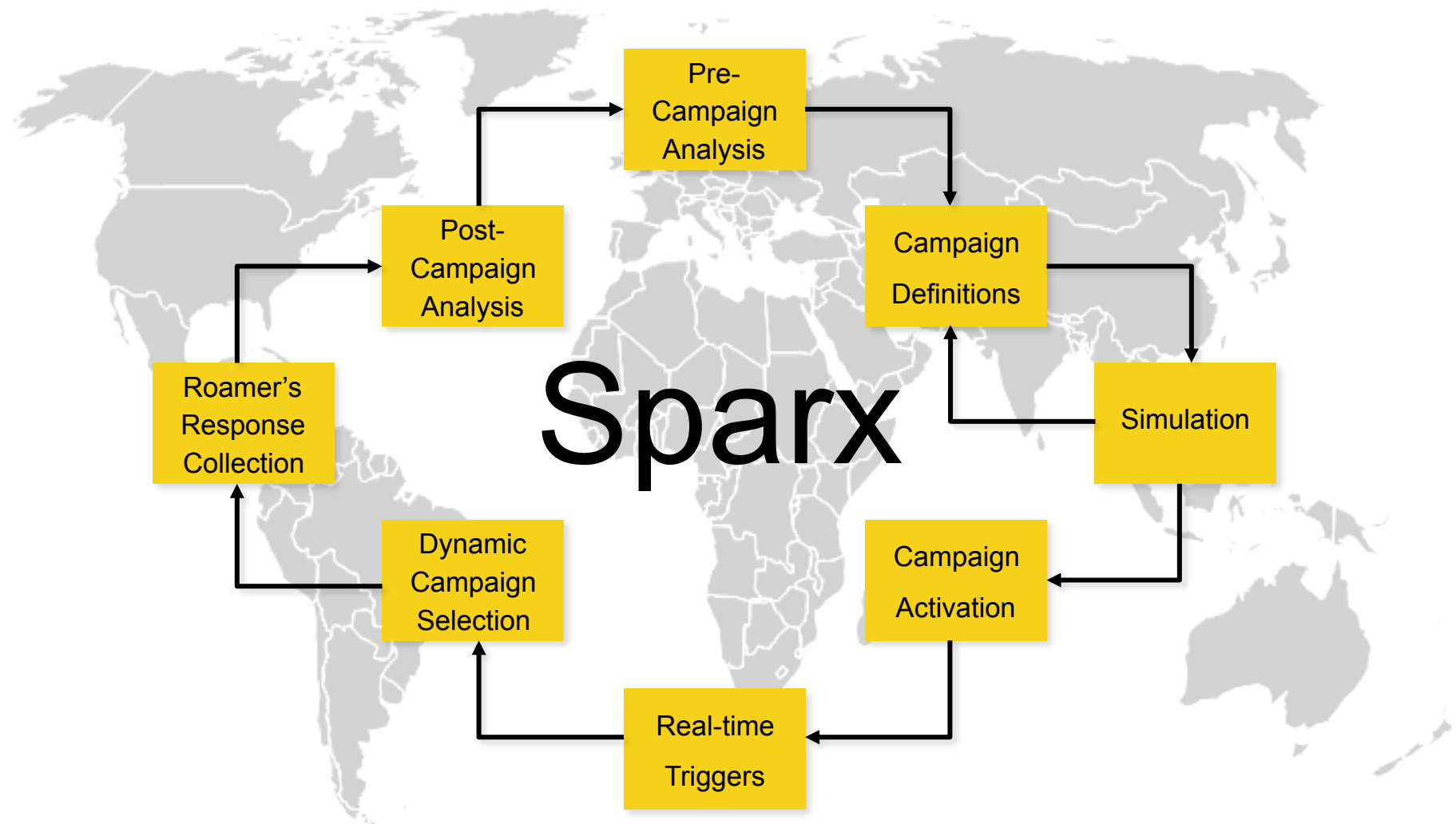
Sparx Overview

Let's Meet Sparx™

Starhome's
interactive,
roamers' marketing
and relations
management
solution goes
beyond standard
“Welcome SMS”



Completing a Cycle



Campaign Definitions

Target

Define two subgroups/targets out of this profile
(by adding more attributes)

Business data

Business users in Europe who have Cell4U Passport option
And
Use data locally (more than 10MB per month)
And
Do not use data roaming (less than 1MB per month)
And
Handset = HTC hero or HTC diamond
And
Number of roaming days in the last 3 months - more than 15
And
Location = Europe

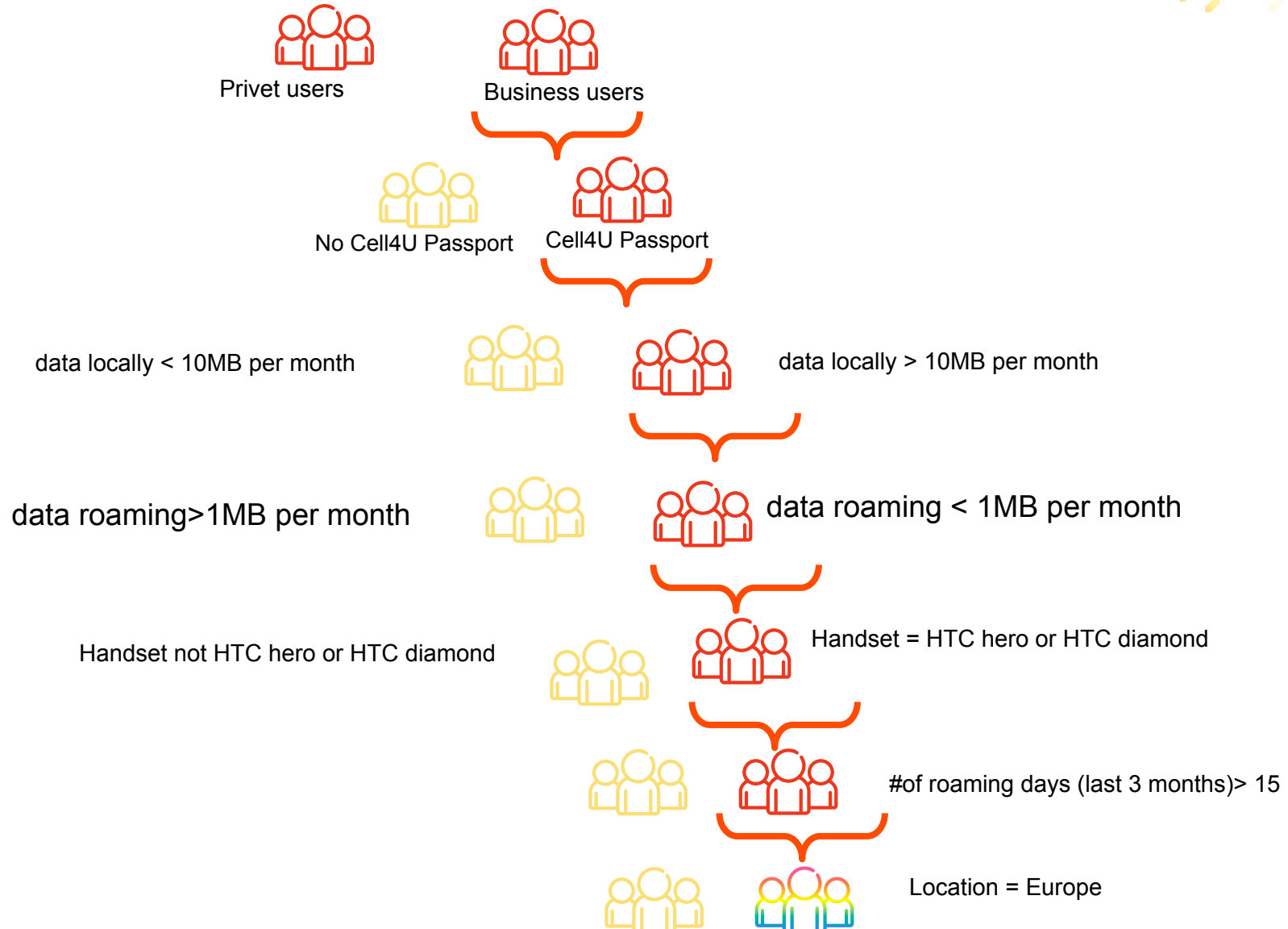
Business Voice and SMS

Business users in Europe who have Cell4U passport option
And
Use SMS locally (more than 700 SMSs per month)
And
Use SMS roaming (less than 20 SMSs per month)
And
Use voice locally (more than 350 minutes per month)
And
Handset = iPhone
And
Number of roaming days in the last 3 months - more than 25
And
Location = Europe

Campaign Definitions

Target (cont.)

Business users in Europe who have Cell4U Passport option



Campaign Definitions

Text Edit

Define text for campaign

Media:

MMS and if not available SMS

Text:

“Want to browse the internet, check your emails, share pictures, chat or just update your social network while roaming?”

A new roaming package is now available for you.

20MB for just 9.9 Euro.

To register please reply to this SMS”

Media:

SMS

Text:

“Stay connected to your relatives and friends while roaming with Cell4U’s new voice and SMS package.

100 minutes and 200 SMSs for just 20 Euro.

To register please click:

www.Cell4U_newpackage.com or reply to this SMS”



MTS Russia Success Story

Sparx in MTS

- Launch date: July 2010
- Target segment:
 - All roamers
- The motivation was to send:
 - Useful information (“how to....”)
 - Promotions (Voice, DATA)
 - Emergency
- Segmentation by:
 - Customer type (consumer/corporate, prepaid/postpaid)
 - Usage
 - Other (geographic location, device, etc)

Roaming Campaigns



■ Objectives

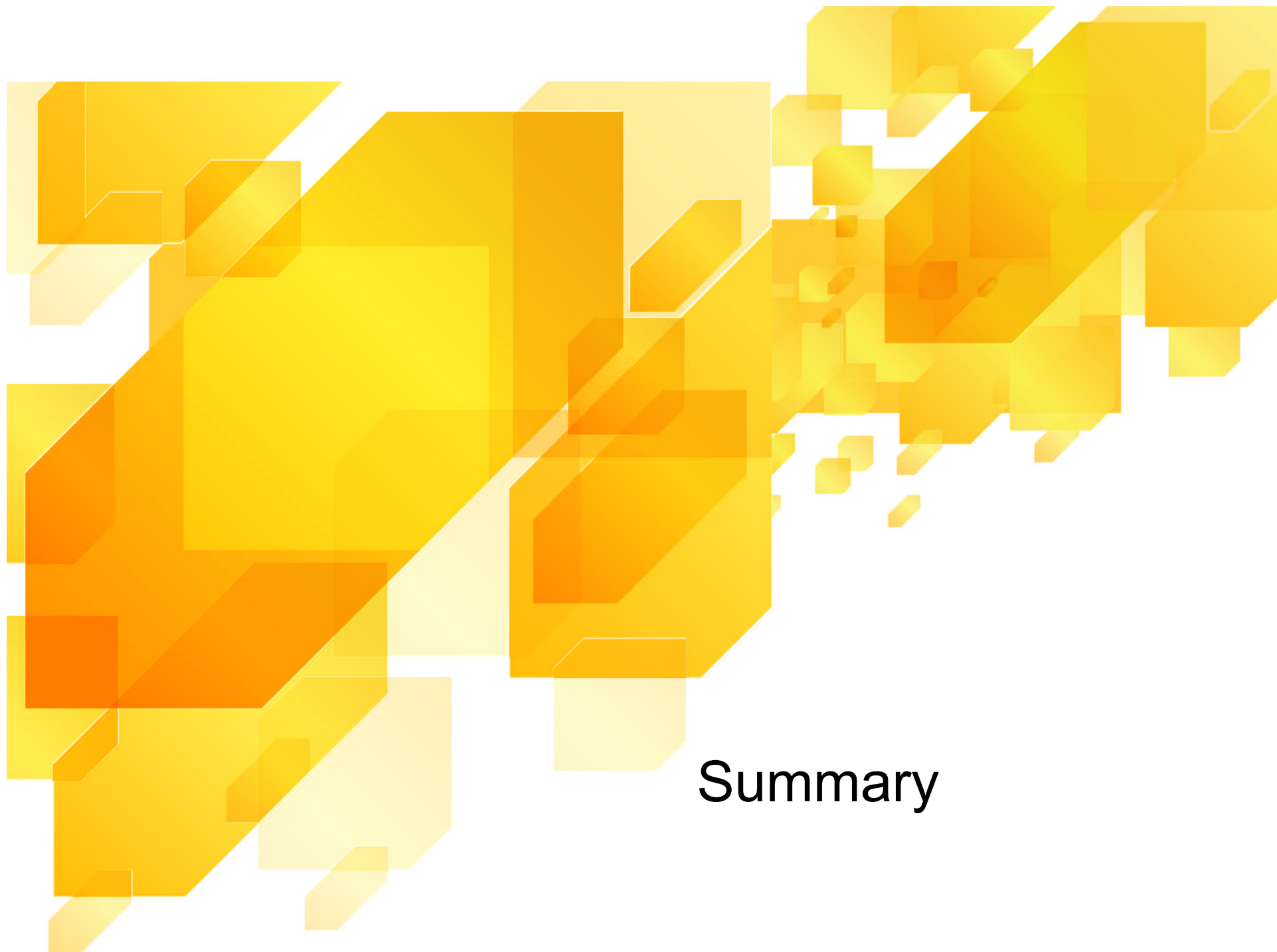
- Awareness of roaming options (voice, data, SMS)
- Remind customers they can call customer service for free
- Remind pre-paid customers how to top up while roaming
- Notify roamers about data roaming tariffs to avoid bill-shock

Campaign Examples

- Campaign sent after informational SMS was received:
 - *“Opt in for “MIR BEZ GRANIC” and get special price while roaming. Dial *XXX#”*
 - *“Data usage in roaming costs you more than at home. To avoid bill shock opt-in for data packages . Dial *XXX# and save money”*
- Campaign sent after informational SMS and promo SMS were received:
 - *“Remember that you can always reach customer service at +7XXXXXXXXXX for free. Yours , MTS”*

Results

- 70% activation of roaming options after receiving SMS
- Customers with roaming option generated more traffic
 - Usage up 149%
 - Number of calls up 40%
 - ARPU up 44%
 - Revenues up 43%
- Customer with roaming option became more loyal to MTS (longer life cycle)
- Positive effect on CDI (touchpoint “Roaming”) +5%



Summary

Conclusions



- Segmentation is vital for your customer communications
 - Should be valuable - not seen as “noise”
- Make it targeted and relevant to your customers’ needs
 - Keep it simple
 - Medium of message is critical
 - Key to driving customer satisfaction
- Review segmentation tools and information regularly to keep campaigns relevant



Q & A

THANK YOU

daniel.balas@starhome.com

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Innovation in Motion

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OECD Work on International Mobile Data Roaming

Agustín Díaz-Pinés, OECD
Webinar
4 October 2011

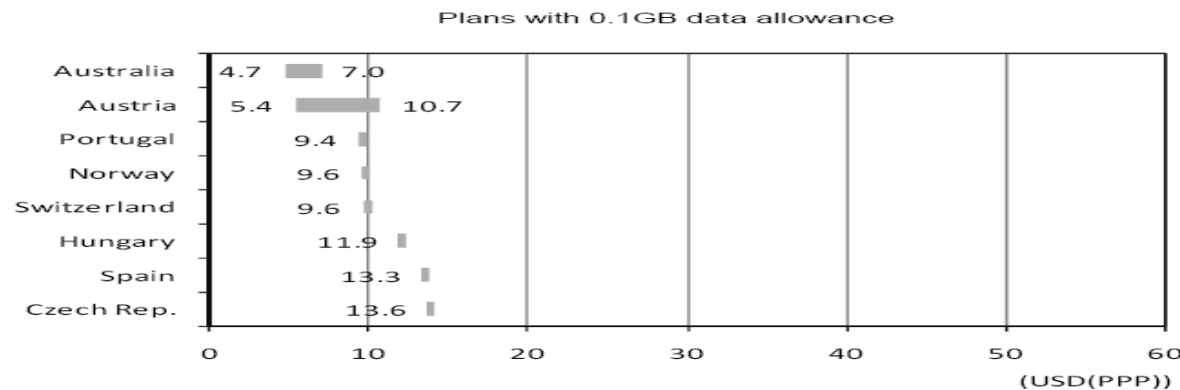
The views expressed in this presentation are solely those of the author and do not necessarily reflect the opinions of the OECD or its membership.

Why data roaming?

- Domestic mobile data: significant source of revenue growth
- Increasing Internet-enabled handset uptake, smartphones
- *“It is also worth noting the strong push in MBB accesses, which have almost doubled vs. 2009 and already account for over 5% of our total mobile base in the region” (Latin America), Santiago Fernández Valbuena, Telefónica, Chief Strategy Officer, 25/2/2011*
- *“This is the year of the smartphone, and we want our 35 million European data users to feel free to use their devices in Europe in the same way as they do at home”, CEO Colao, Vodafone, 29/10/2010*
- *“I want the gap between roaming and domestic prices to approach zero”, Digital Agenda Commissioner Kroes, European Commission, 23/9/2010*
- *“Mobile data-roaming charges remain shockingly high”, 3, UK operator, September 2010*

Main points: pricing

- Average price MB: USD 6-10 PPP (average by origin)
- USD 2.5 to USD 6 per MB (least expensive destination)
- 100 kB picture MMS: USD 1.4 (sent) and USD 0.7 (received)
- OECD domestic mobile broadband 2008 benchmark (handset) use:



- USD 10 buy roughly 100MB of domestic data...while only 1 MB of roaming data. Up to **100 times!** more expensive.

Data collection methodology (I)

- 34 OECD countries – including Mexico and Chile
- September 2010
- Two largest operators by country: 68 operators
- Roaming routes within the OECD
- Prices for handset and for laptop use
- Residential offers addressed to general public
- Access to the broader Internet (e.g. email use only excluded)

Data collection methodology (II)

- Standard rates + data plans
- Rates for specific devices (e.g. blackberry), have been excluded.
- MMS (incoming and outgoing)
- Rich set of raw data: possible to select different consumption patterns and map them to prices.
- Complex mapping: different conditions apply, overage charges, etc.
- Country preview and check

Charging patterns (I)

- **Standard rates vs. data plans**

- Standard rate: as high as USD 30-50 per MB
- Data plans (74%): daily (23 operators), weekly (10 operators), monthly (35 operators)
- 6 countries only have standard rates available
- Sometimes a daily plan is the standard rate (e.g. Spain, Ireland) or...
- ...requires domestic plan (e.g. Rogers, T-Mobile Austria, Verizon)
- Some plans need a commitment period (e.g. Verizon): they have been included in some cases.

Charging patterns (II)

- **Zone breakdown**

- Typically 2 to 4 zones, may differ from those of voice services
- MMS: 30 operators provide one blended price for all countries

- **Availability**

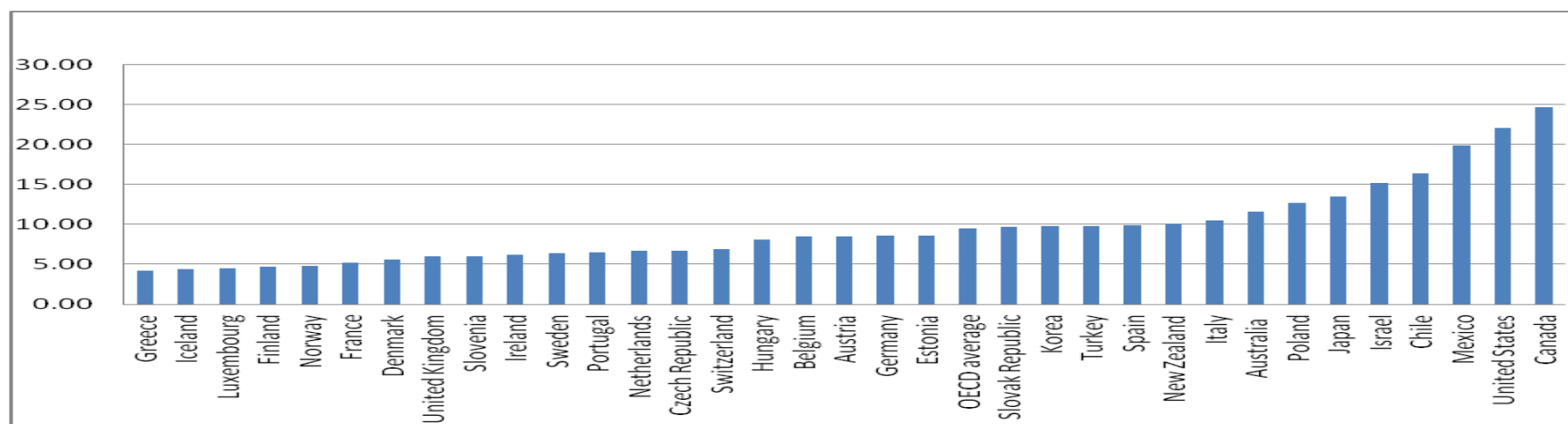
- Virtually all routes in the OECD
- KDDI au: only in Mexico, Israel, United States and Canada
- Some routes not covered: Iceland-New Zealand, Estonia-Korea
- Limitations linked to technology (CDMA)

Data roaming baskets

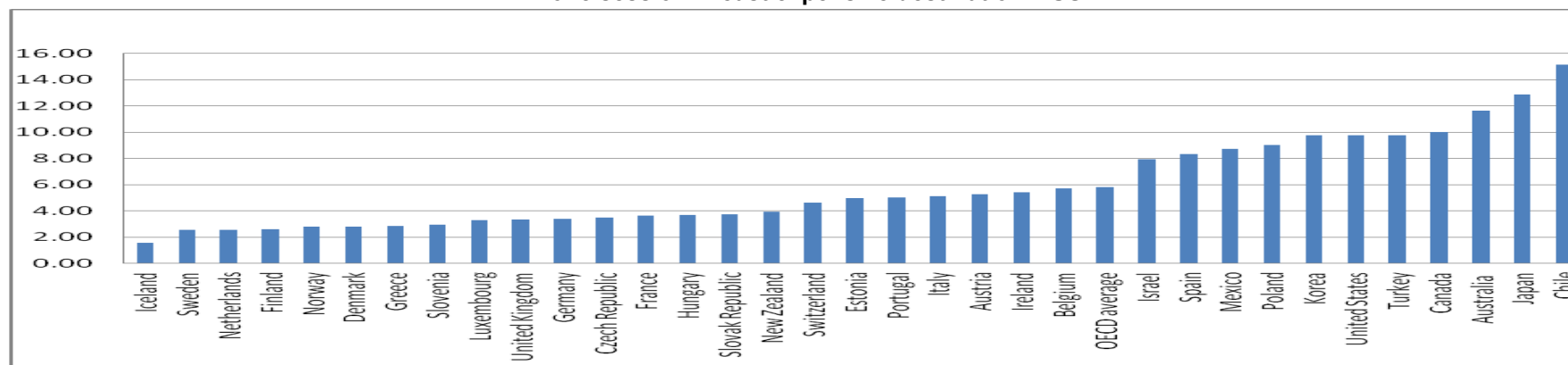
- Three different data amounts: 1 MB, 5 MB, 20 MB
- Average by origin vs. rate of the least expensive destination
- 5MB over a week and 20 MB over a month (1MB sessions)
- MMS: 100 kB – picture MMS – some apply data roaming charges

Main findings – 1 MB

1 MB in one session – average price by origin – USD PPP

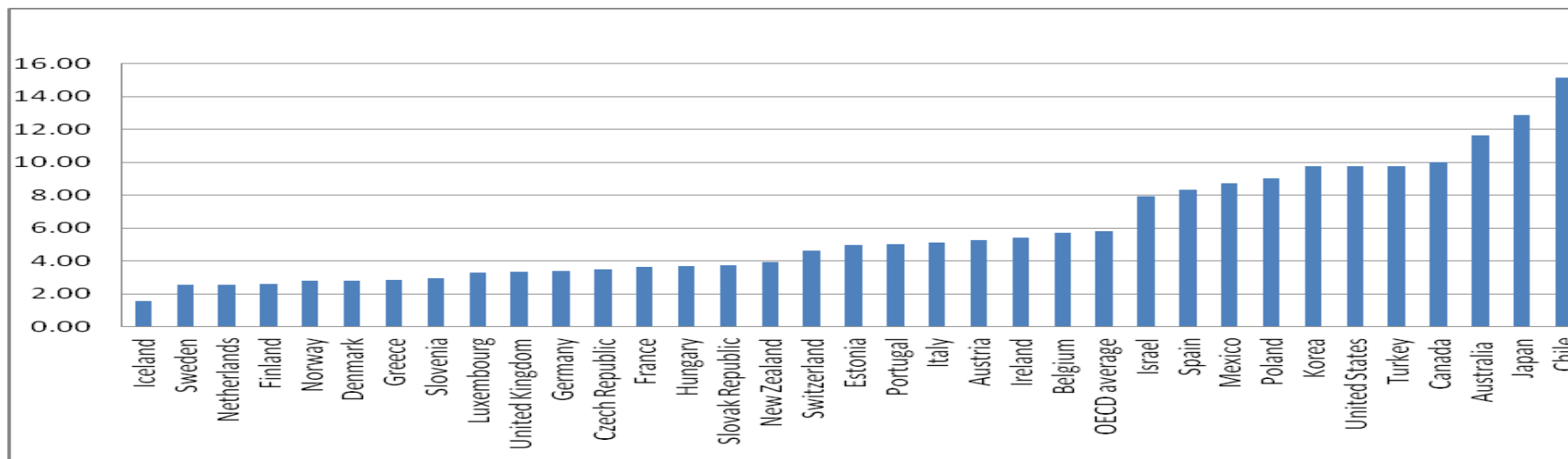


1 MB in one session – least expensive destination – USD PPP

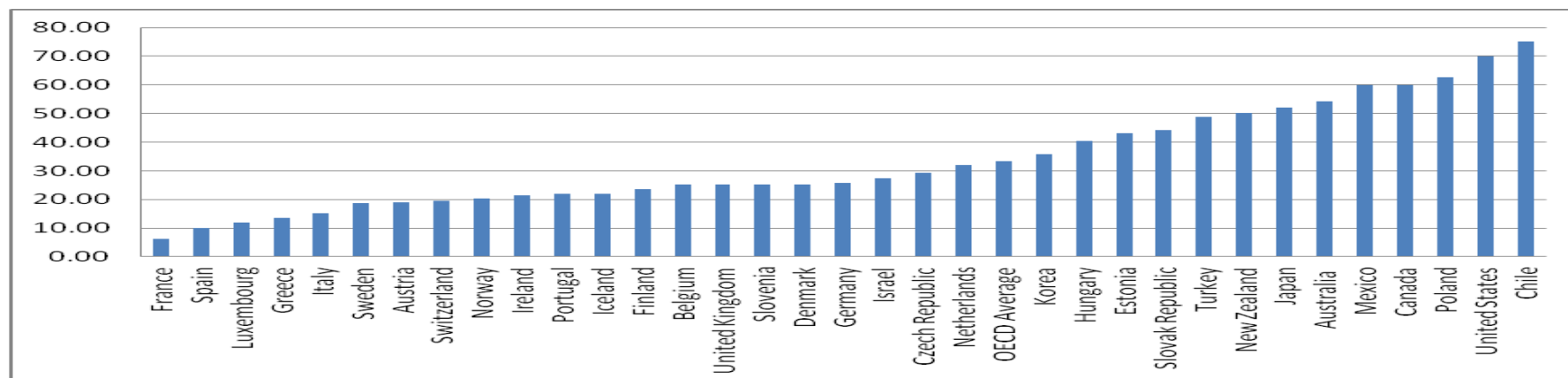


Main findings – 5 MB

5 MB in five sessions over a week – average price by origin – USD PPP

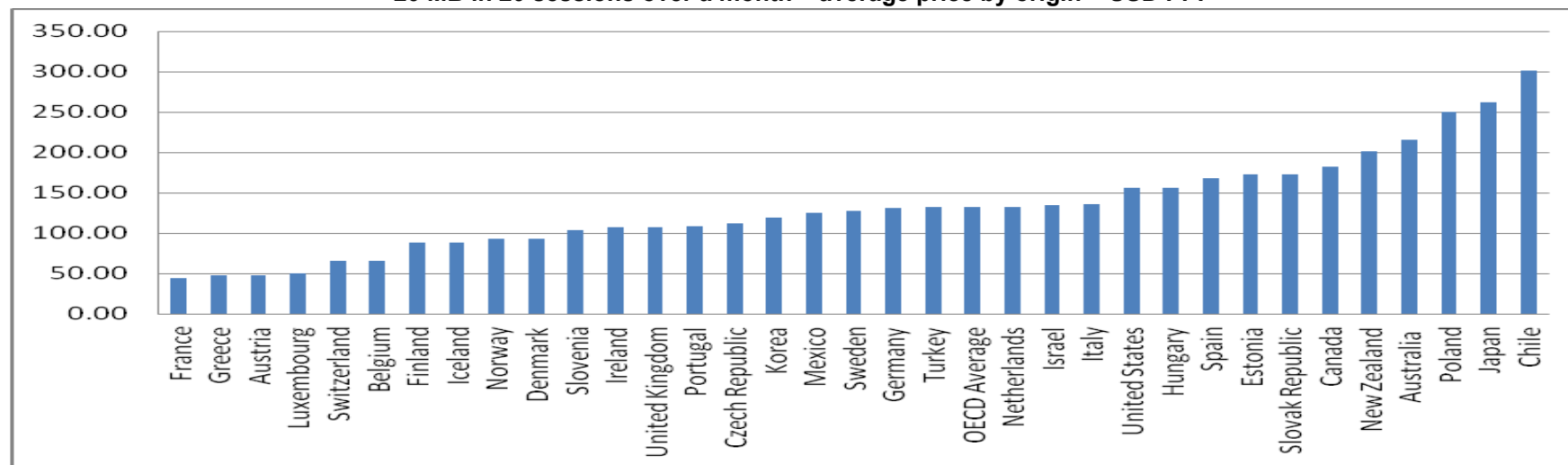


5 MB in one session – average price by origin – USD PPP

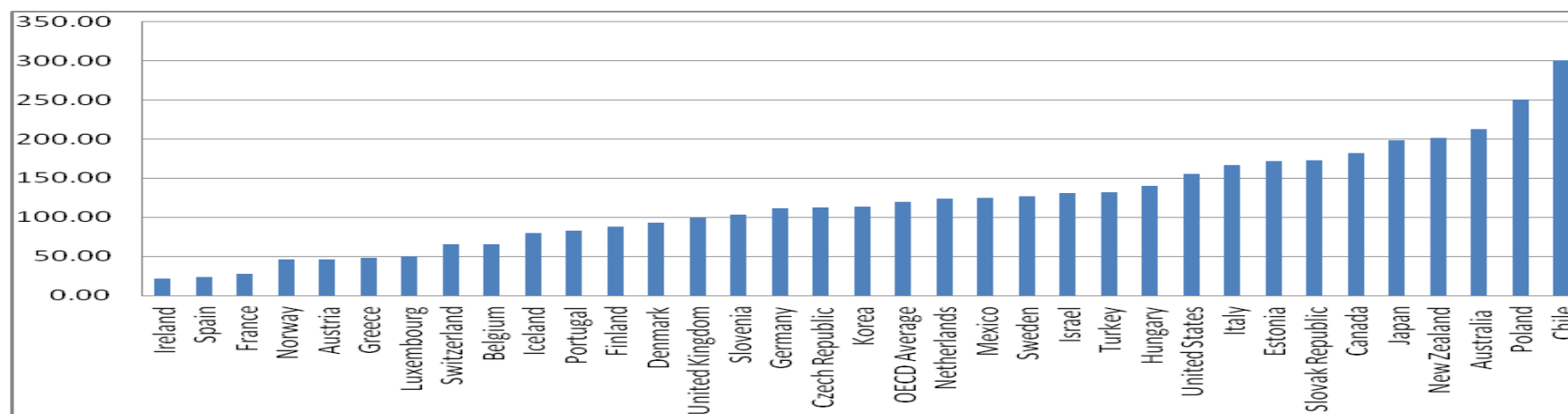


Main findings – 20 MB

20 MB in 20 sessions over a month – average price by origin – USD PPP

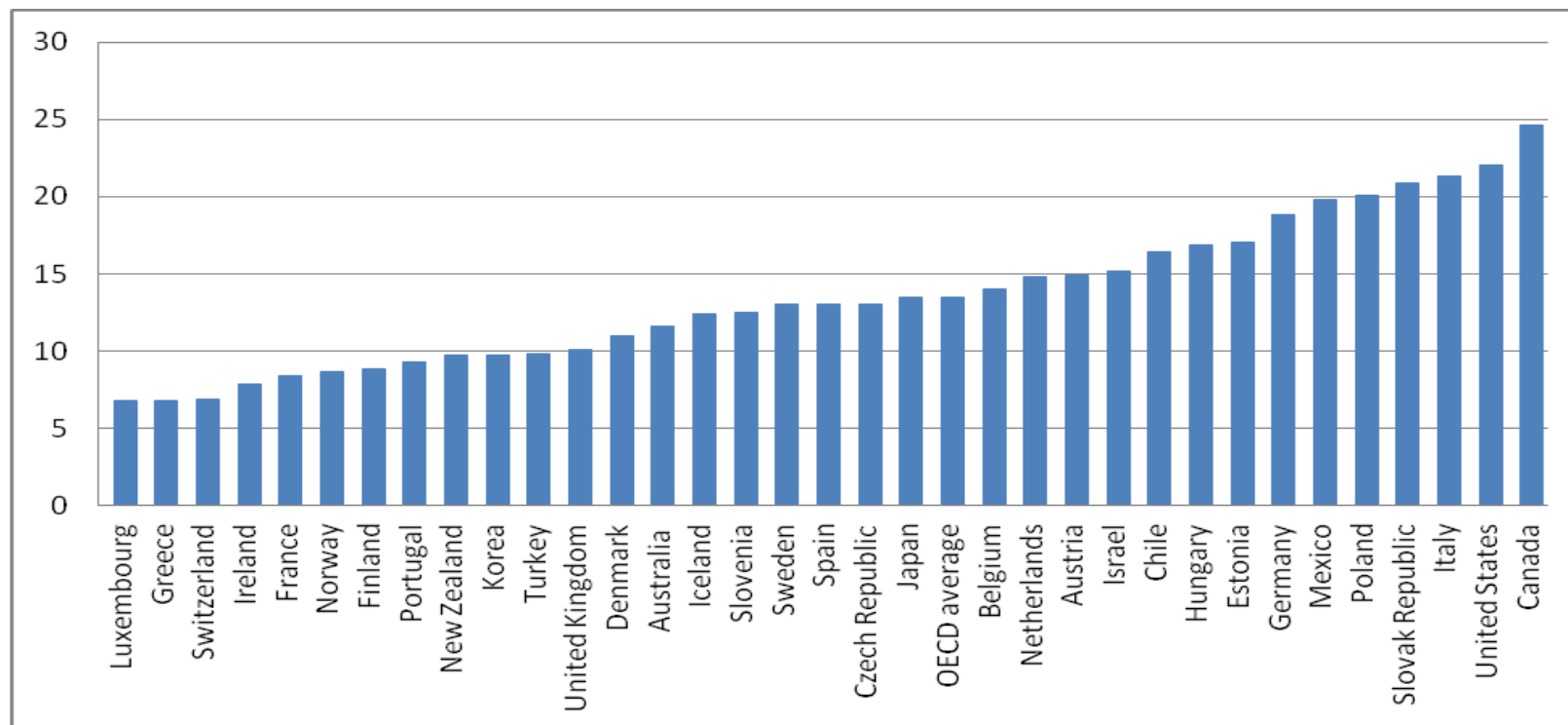


20 MB in one session – average price by origin – USD PPP



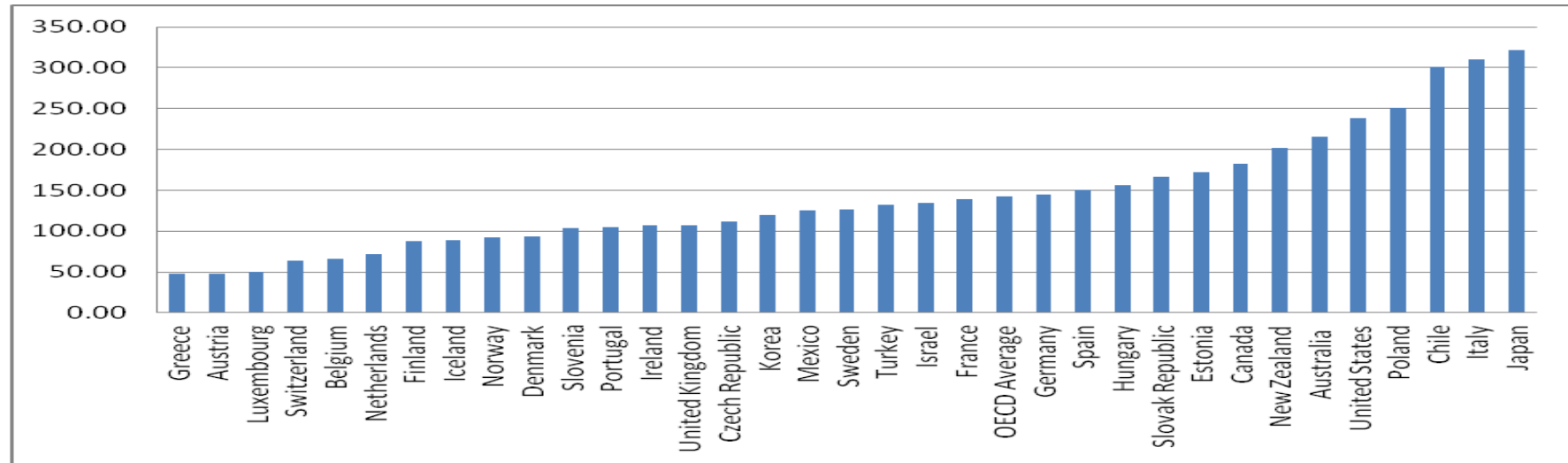
Main findings – 1MB extra EU/EEA

1 MB in one session – average price by origin – USD PPP

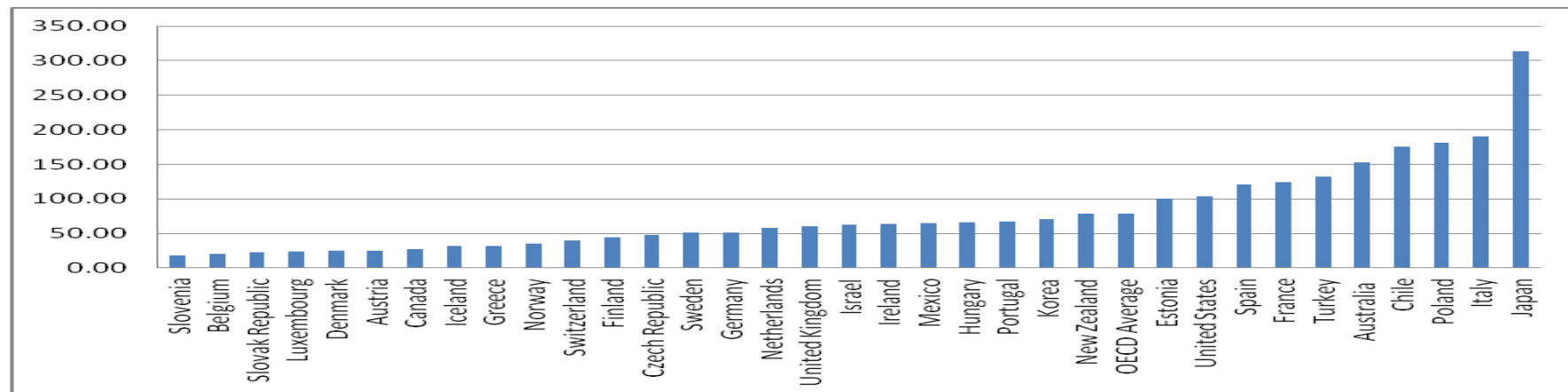


Main findings – 20 MB - laptop use

20 MB in 20 sessions over a month – average price by origin – USD PPP

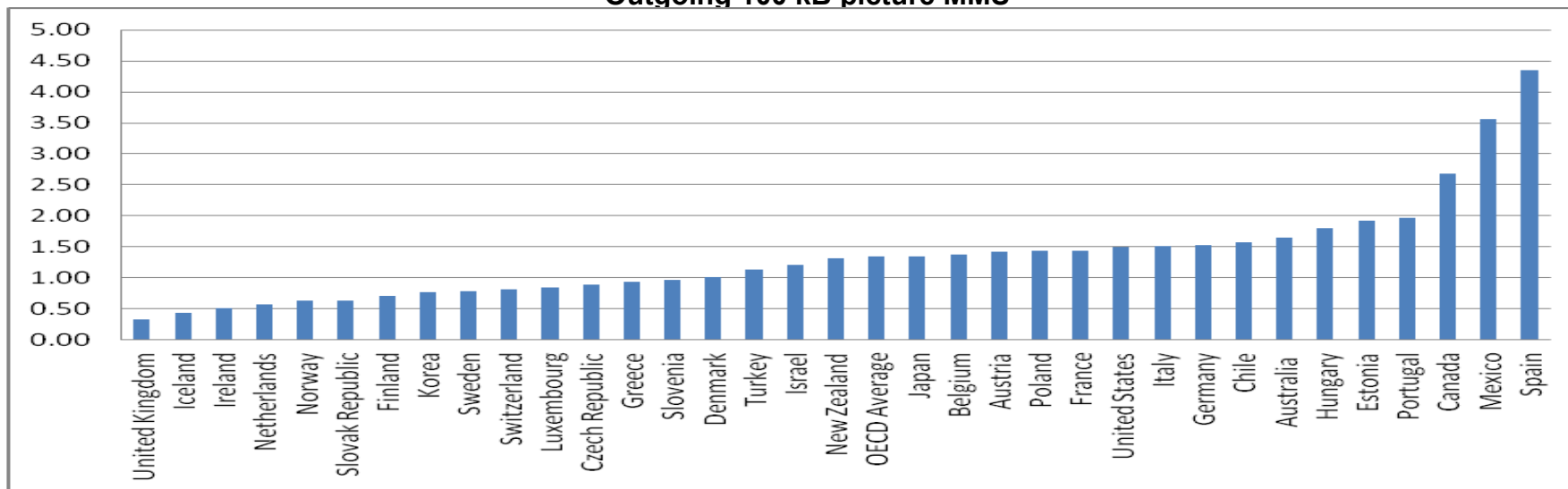


20 MB in 20 sessions over a month - price of the least expensive destination – USD PPP

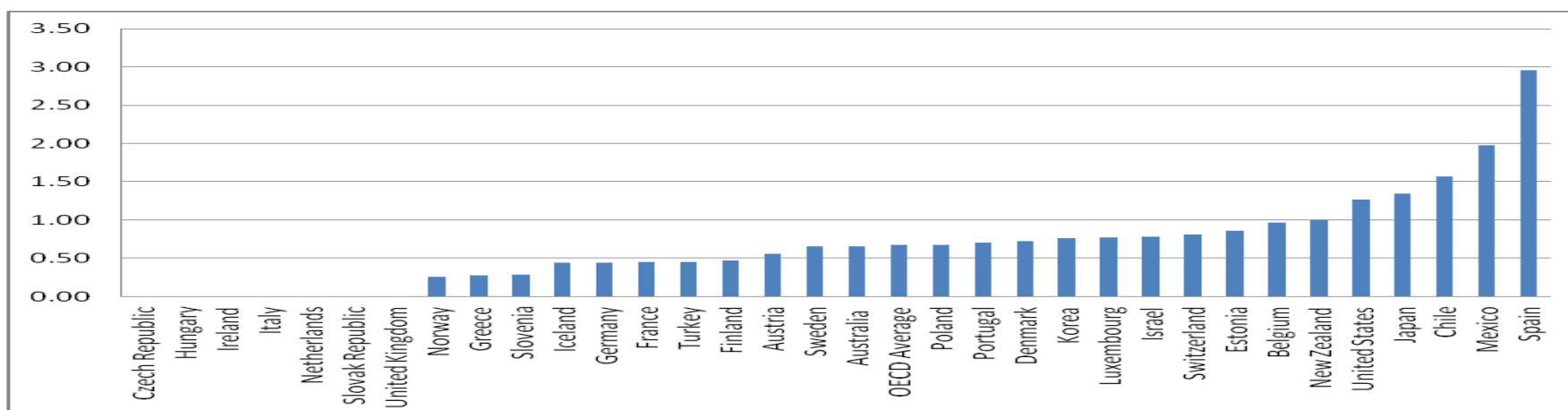


Main findings – MMS

Outgoing 100 kB picture MMS



Incoming 100 kB picture MMS



Mexico

- **Telcel:**

- 3 zones

- Zone1: US, Canada, LAC (USD 9/MB)
 - Zone 2: preferential Europe (USD 12/MB)
 - Zone 3: rest (USD 29/MB)

- Some plans: but still 100 MB cost USD 160 in zone 1 and USD 226 in zones 2 and 3. Some blackberry plans: USD 4/day, USD 46/month in zone 1, and USD 15/day, USD 150/month in zones 2 and 3.

- **Movistar:**

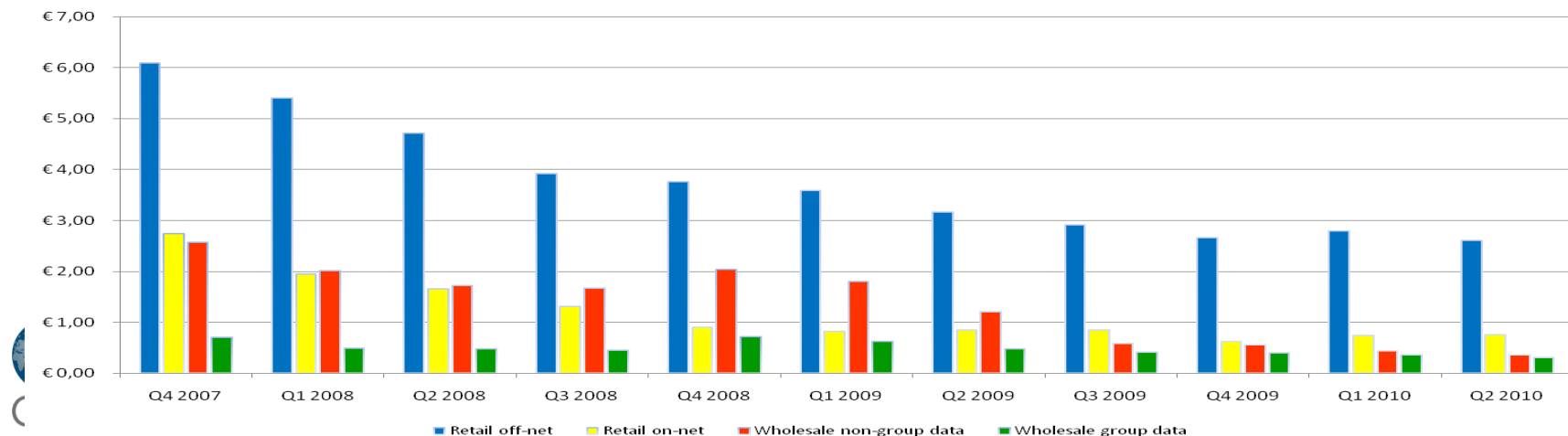
- Zone1: Canada, US, Central America (USD 2.5/MB)
 - Zone 2: Europe and South America (USD 4.70/MB)
 - Zone 3: rest (USD 11/MB)

Chile

- Movistar:
 - Standard rate is USD 13/MB
 - Roaming 7MB plan: CLP 28900
 - Plan Bicentenario (Movistar countries): CLP 34,990 - unlimited
- Entel PCS:
 - USD 10/MB (United States, ATT)
 - USD 12/MB (rest)

Wholesale prices and transparency measures: EU Roaming Regulation

- **Wholesale prices:**
 - “Emerging market”, closer substitutes
 - EU/EEA cap on wholesale roaming rates – glide path USD 1.30-0.6
 - Retail prices: USD 3.6/MB (Q2 2010) down from USD 8 (Q4 2007)
 - BEREC and EC: prices are falling, but still significant retail margin
- **Transparency measures:**
 - Inadvertent data roaming is more frequent
 - Bill-shock: cut-off limit



Conclusions

- **Data roaming rates remain extremely expensive**
- **Insufficient competition at the retail and the wholesale level, though some evolution**
- **Wholesale regulation: not enough to stimulate competition (yet) – will smart-phones do?**
- **Transparency measures are needed**
- **Complex data collection and benchmarking**

- Available at

<http://www.oecd.org/dataoecd/57/62/48127892.pdf>

Thank you