



# Creating the Experience of One with Service Assurance Mediation

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# Overview

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- Founded in May 2012
- Privately owned
- Head quarter in Stockholm, Sweden

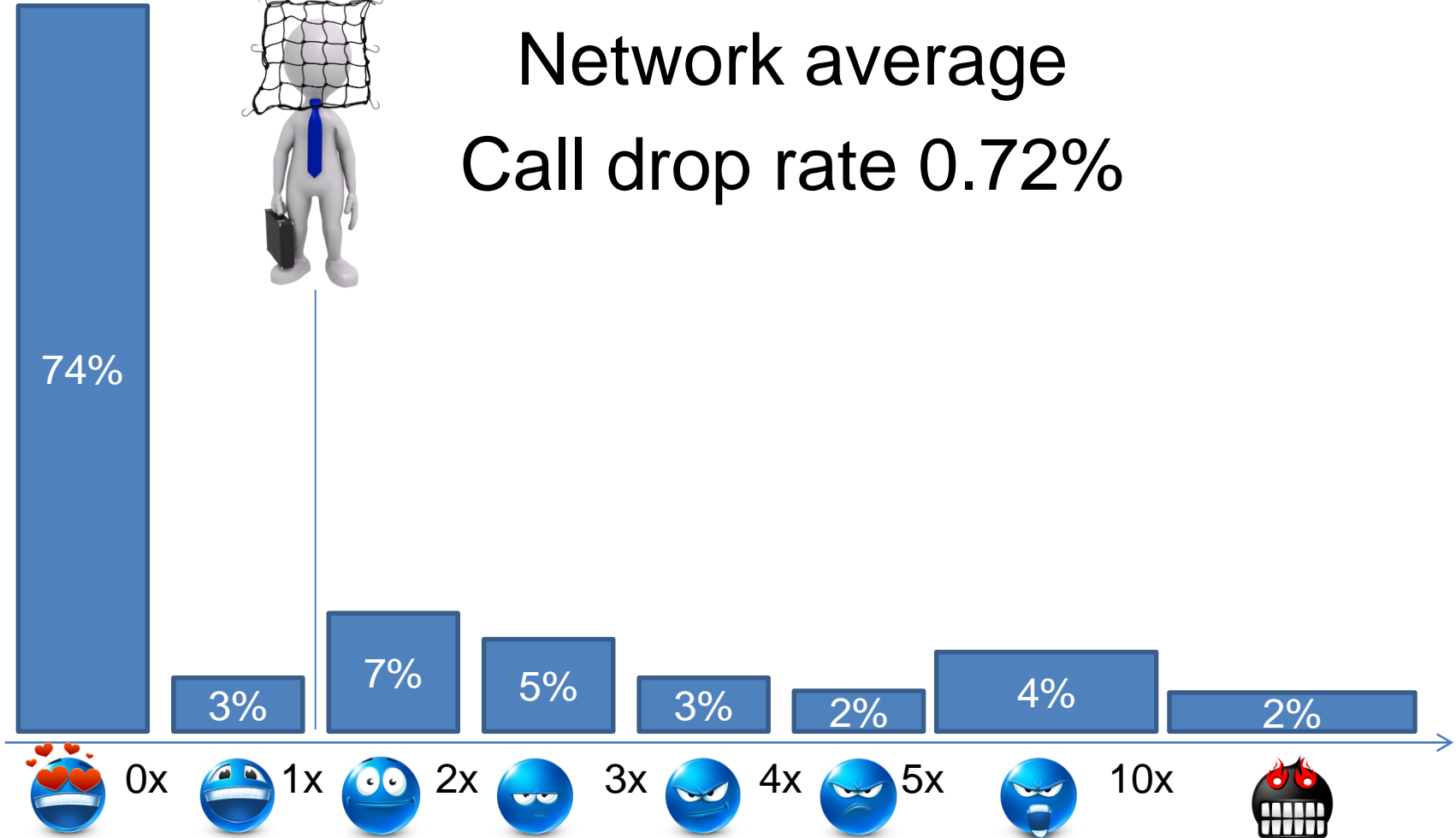
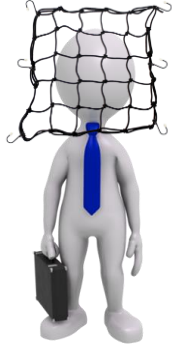
# Changing view on OSS data

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- The traditional way of looking at performance data is **network centric** with the aim to fulfil operational & capacity requirements.
- The exact same data can be viewed from a **customer centric** perspective, with focus on visualizing your customers service experience

# Customer centric vs. Network centric

Network average  
Call drop rate 0.72%



# Founding ideas

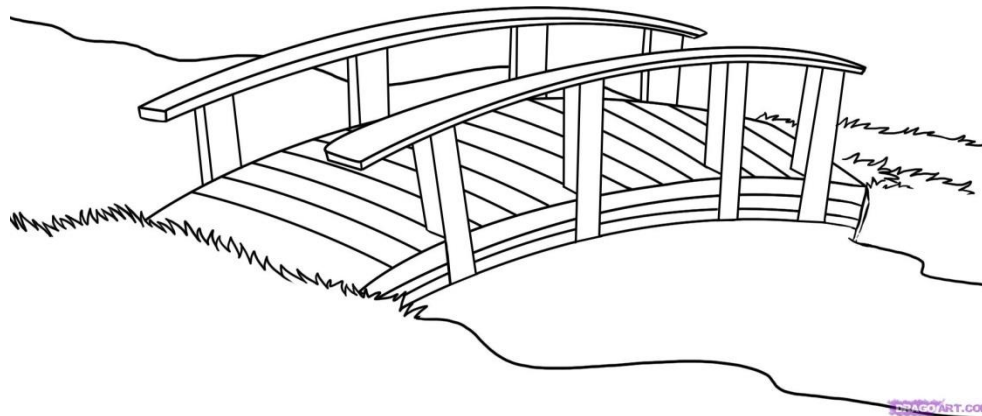
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Bridge the gap between network department and the rest of the organization

– spread the valuable network data, by building applications

- ✓ With the customer in focus
- ✓ Snappy, easy to use and accessible
- ✓ Work closely with our customers in our development

1%



10%

# Building the bridge

Call Window

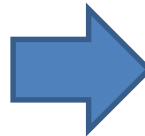
Timestamp	Type	Direction	Resulting Sta...	Resulting Sta...	Source Address	Dest Address	Media Probe Id	Ext...	Dir...
Wed 05 Mar 2...	76: ExtendedService...	<-->	Normal	SIAP Reques...	10.78.108.129...	10.67.97.36:...	76...		
Wed 05 Mar 2...	InitialContextSetupR...	<-->	Normal	SIAP NAS Tr...	10.67.97.37:5...	10.78.108.130			
Wed 05 Mar 2...	UECapabilityInfoIndic...	<-->	Normal	SIAP NAS Tr...	10.78.108.129...	10.67.97.36:...			
Wed 05 Mar 2...	InitialContextSetupR...	<-->	Normal	SIAP NAS Tr...	10.78.108.129...	10.67.97.36:...			
Wed 05 Mar 2...	UEContextReleaseRe...	<-->	Normal	SIAP NAS Tr...	10.78.108.129...	10.67.97.36:...			
Wed 05 Mar 2...	UEContextReleaseCo...	<-->	Normal	SIAP UECent...	10.67.97.37:5...	10.78.108.130			
Wed 05 Mar 2...	UEContextReleaseCo...	<-->	End	SIAP End	10.78.108.129...	10.67.97.36:...			

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Mobile Country Code (MCC) = 240
Mobile Network Code (MNC) = f02
tAC = 11700
protocolIEs nr 3
  id = 100
  criticality = 1 (ignore)
  value
    SIAP-IEs.EUTRAN-CGI
      pLMNIdentity = 42 f0 20
        Mobile Country Code (MCC) = 240
        Mobile Network Code (MNC) = f02
        cell-ID = '00101101 00110011 00100001 0101'B
        ENodeB-ID = 185138
        00010101 Sector = 21
    protocolIEs nr 4
      id = 134
      criticality = 1 (ignore)
      value
        SIAP-IEs.RRC-Establishment-Cause = 4 (mo-Data)
    protocolIEs nr 5
      id = 96
      criticality = 0 (reject)
  
```

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34 07 fb 1f 11 db 6c 9c ed f6 5a db 81 00 a3 47      4.....1..oZ...G
08 00 45 b8 00 7c dc 3d 40 00 fa 84 c0 d1 0a 4e      ..E..|_@.....N
6c 81 0a 43 61 24 8e 3c 8e 3c 06 2e e5 e4 a4 48      1..Ca&.<<...<..H
9e 80 00 03 00 5b f2 08 dc b7 00 01 05 a0 00 00      .....@.....L...
00 12 00 0c 40 47 00 00 06 00 08 00 03 40 06 99      .....@.....L...
00 1a 00 14 13 17 14 16 db 89 02 07 4c 00 05 f4      .....@.....L...
4d f8 49 25 57 02 20 00 00 43 00 06 00 42 f0 20      -..@...C...B..
2d b4 00 64 40 08 00 12 f0 20 2d 33 21 50 00 86      -.d@..B...-3!P..
40 01 40 00 60 00 06 34 00 d0 f8 49 25 00          @..@...4...!$.
  
```



Overview Events Map Gantt Map Movement Trend Cells Voice Data SMS

Find customer

From: 2014-01-30  
 To: 2014-02-09  
 IMSI:  
 MSISDN: 46703370668  
 IMEI:

Search

Customer Info

Name: Customer Intelligence Consulting & Services  
 Street: Näsby Allé 18  
 Address: 183 55 Täby  
 Status: Active  
 Customer Type: BUSINESS  
 Subscriber type: Post-Paid  
 Tariff plan: 3Företag L  
 Business Unit: SWEDEN

Handset: Apple iPhone 5S  
 MSISDN: 46703370668  
 IMSI: 240020007763891  
 IMEI: 357997058962800  
 Signaling IMEI: 35799705896280  
 SV: 03

Old SIM last used: 2013-10-31 21:00:47  
 Handset: Apple iPhone 4S  
 IMSI: 240020005887120  
 IMEI: 013065003211297  
 Signaling IMEI: 01306500321129  
 SV: 12

# Key Differentiators

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- All applications designed for optimal query speed
- Only fully functional applications provided – no empty frameworks
- No legacy hardware – prefer virtual environment

# Our applications

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NocMap



SubSearch



CorpDash



Device



**DEMO**



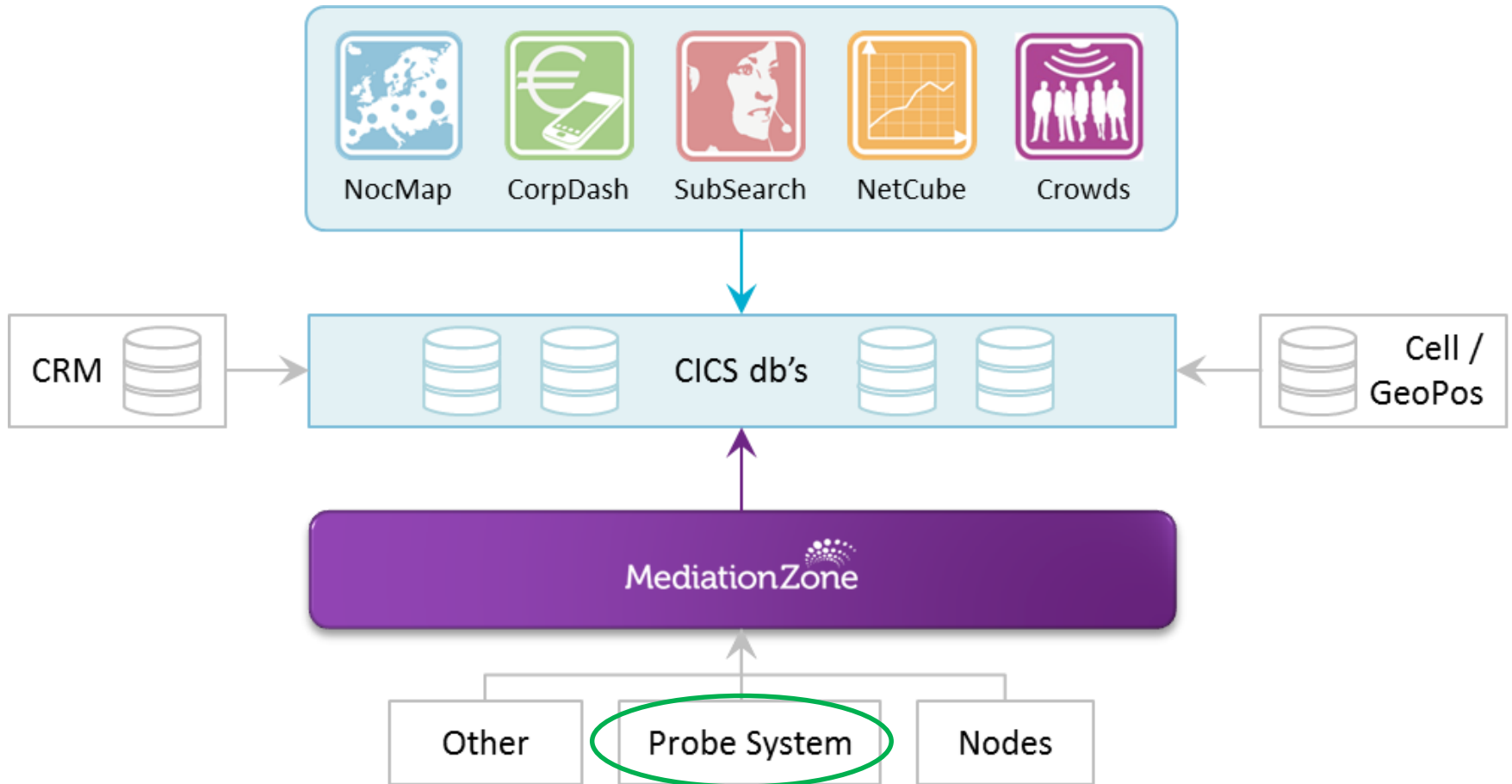
# System design and the use of MediationZone

# Challenges

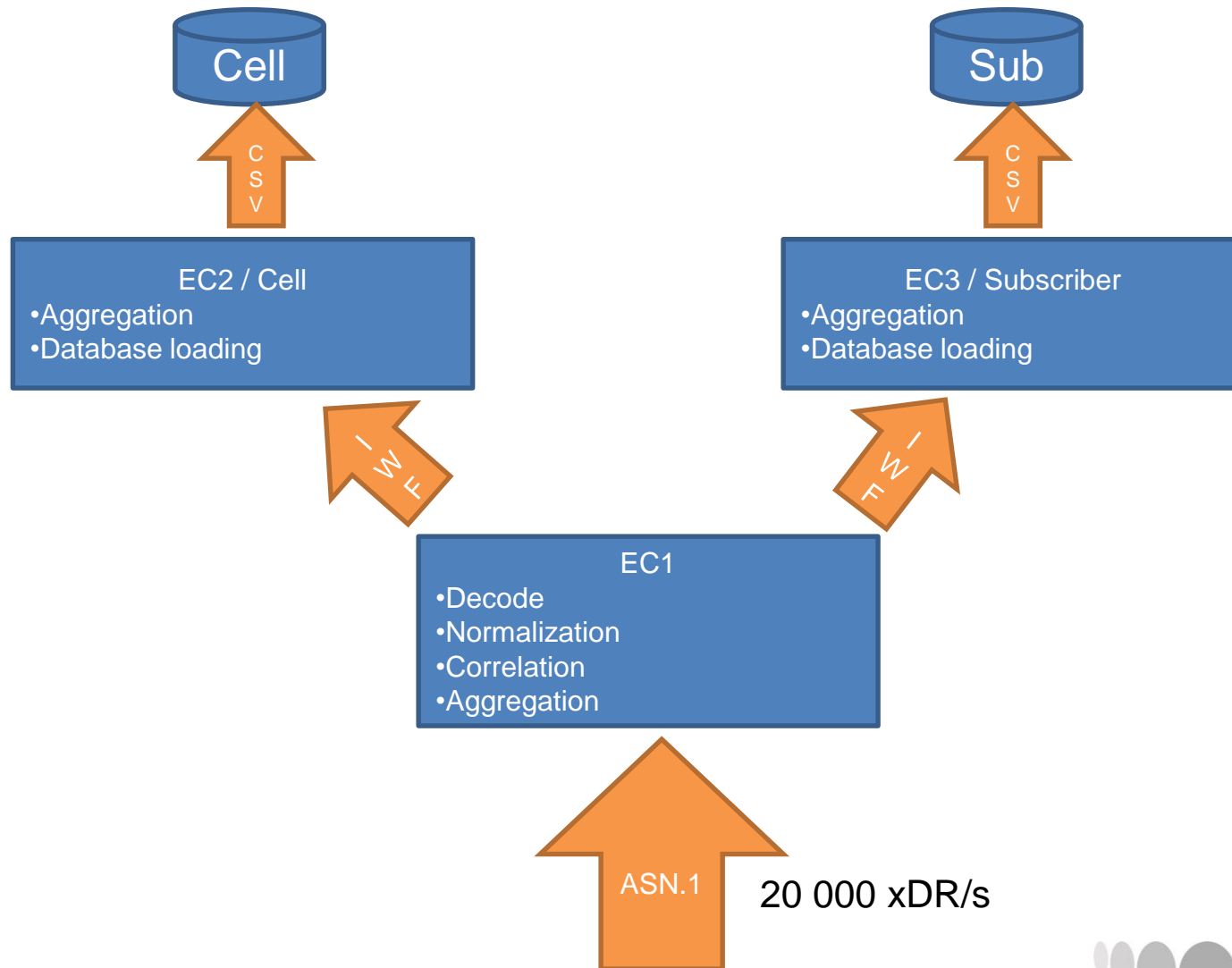
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- Processing tens of thousand of events per second in real-time
- Creating KPIs that reflect the user experience
- Make the KPIs available in an easy-to-use and understand environment

# Architecture



# MediationZone setup



# Correlation/Enrichment

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- Handover correlation
  - CSFB correlation
  - Paging correlation
  - Cell/Positioning enrichment
  - Company id enrichment
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- All the above are solved with aggregation agents

# Conversion to counters

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ASN.1 xDRs containing

- Procedure information
- Timestamps for procedures
- Release causes

Converted into counters/KPIs for

- Calls/SMS/Data, such as attempts, failed, drops, volume, throughput

# Aggregation in MZ

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- Time period
  - From 10 s up to hour
- Network topology
  - Cell ID/SAC/Sector smallest denominator
- IMSI (identifying single subscribers)
  - Customer performance data
- Company



# Stream processing

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- ✓ More than 95% of the data is stripped away
- ✓ The data is structured for optimal database query performance
- ✓ Once inserted into the database it is ready for use straight away

# Main drivers for using MZ

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- ✓ We can focus on building value
  - DR focused on building the framework
  - Faster time to market – at least over time
- ✓ Our solution becomes HW efficient
  - Combination of MZ and our design philosophy
- ✓ Scalability
  - We feel more secure
  - Assurance for our customers with DR as reference



**Thank you!**