

AII

2017 7


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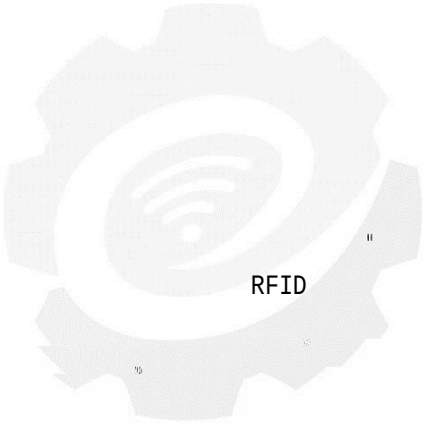

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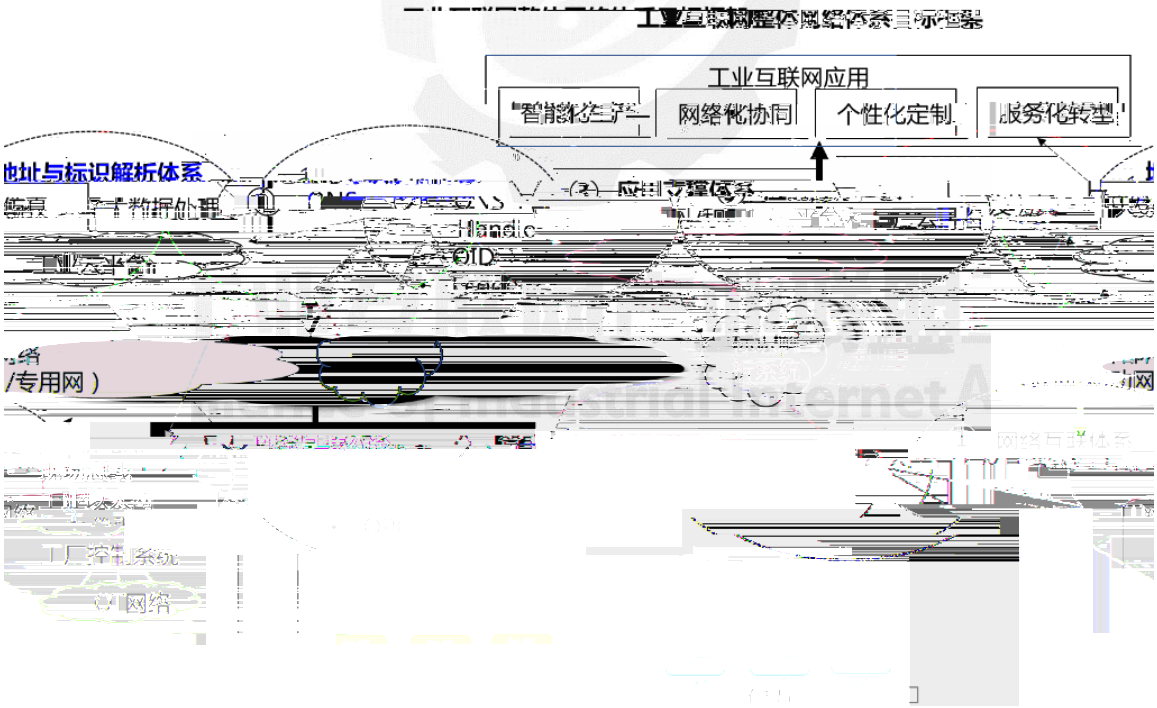


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OPC/OPCUA

- Handle ONS

  ONS Handle

  OID Ecode

-



1.

5671

1997

2010

600

2-1-1



2-1-2

45% 21%

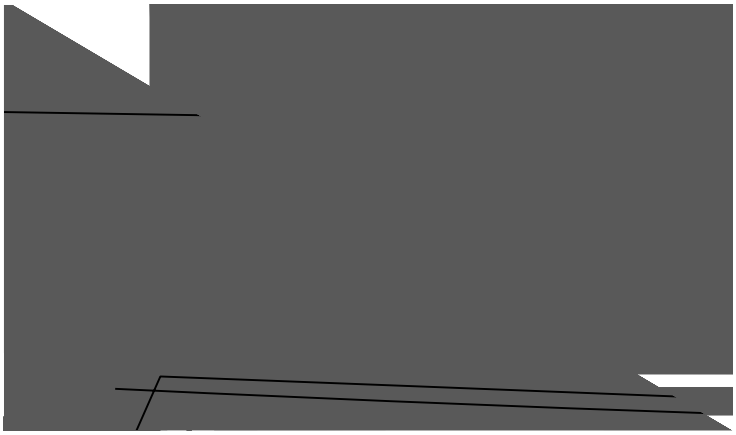
Siemens PROFIBUS

PROFINET ROCKWEll Devicenet Ethernet/Ip Siemens

ROCKWEll



PROFINET



2-1-3

1573

2001 2011 2015

200 2016

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40% 23%


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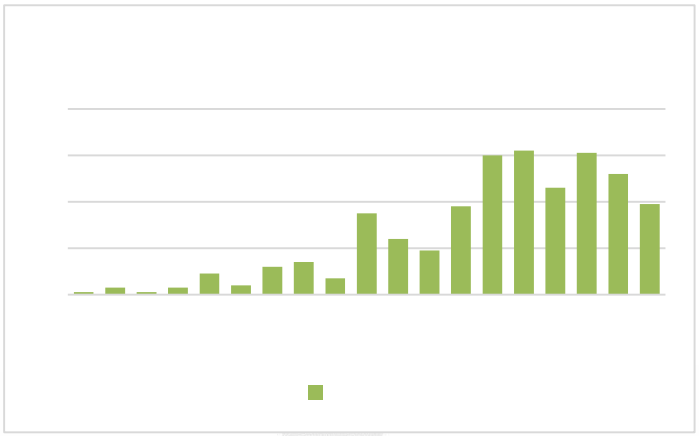
3.OPC/OPC UA

OPC 1998 OPC Windows 1998-2007 OPA UA 2007 40



2-1-50PC

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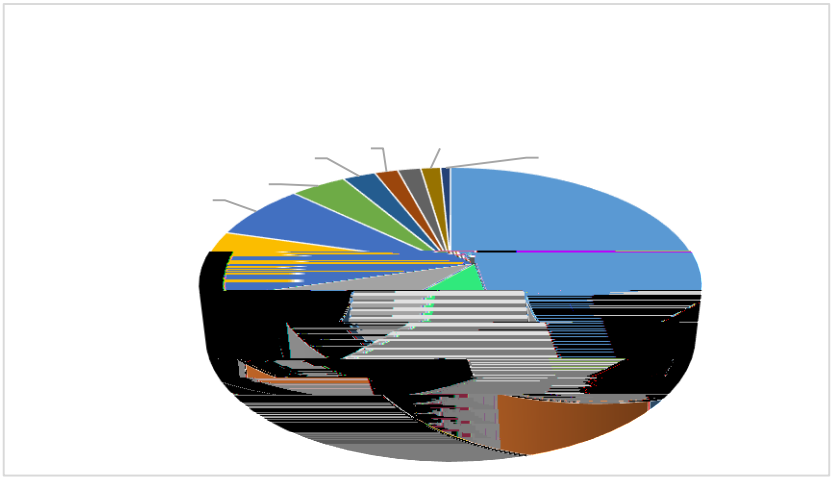
47% OPC 14% WIPO OPC OPC OPC UA OPC 2008



2-1-6 OPC

Siemens ABB GE EMERSON FISHER-ROSEMOUNT BOSCH ROCKWEll OPC ABB Siemens OPC

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Siemens ABB

2-1-7 OPC OPC UA

OPC UA 2008 ABB OPC UA

OPC

OPC UA Siemens ABB

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OPC UA OPC UA

OPC UA OPC UA

1.ONS

2-2-1 ONS

ONS DNS ONS

532 257 2005

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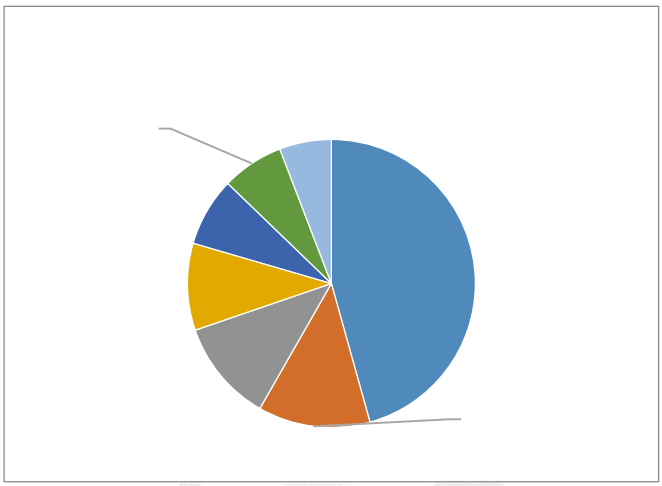
ONS 2012 2013

ONS



2-2-3 ONS

GE

AT&T IBM (IIC)

Cisco

ONS 80 IBM

ONS 70

ONS

ONS



Handle

Handle



2-2-5 Handle

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CONTENT DIRECTIONS

AMERICAN EXPRESS TRAVEL RELATE

Handle

3.OID

Object identifier, OID ISO/IEC ITU

OID

2016 5 , OID 954393 OID

RFID 3GPP

OID 130

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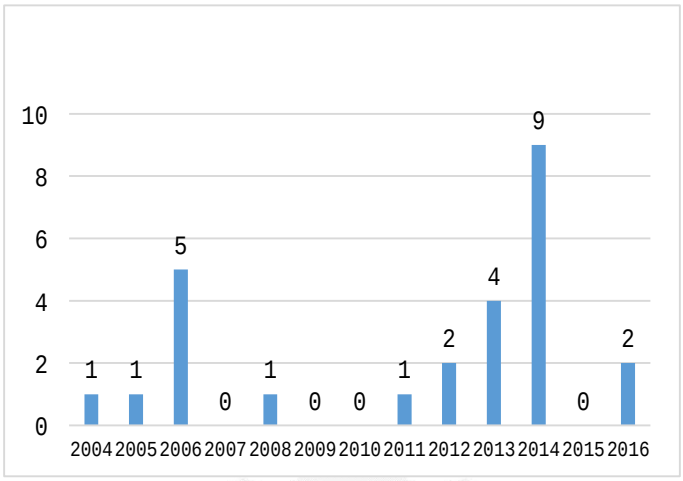
2-2-6 OID



2-2-7 OID

2015 “ OID " ”

ITU-T

OID 26 24

OID 2004 OID

OID

OID

ISO ISO-ITU

(JOINT-ISO-ITU-T) ITU-T ISO ISO-ITU

OID

2-2-8 OID

OID 37%

21%

OID OID

ETRI 14 ULTRATA

12

RFID

OID RFID

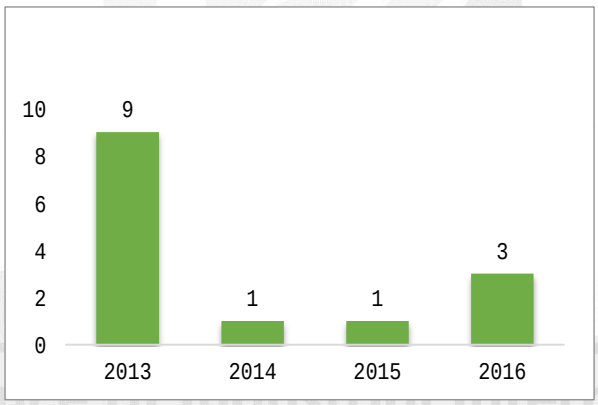
OID

4.Ecode

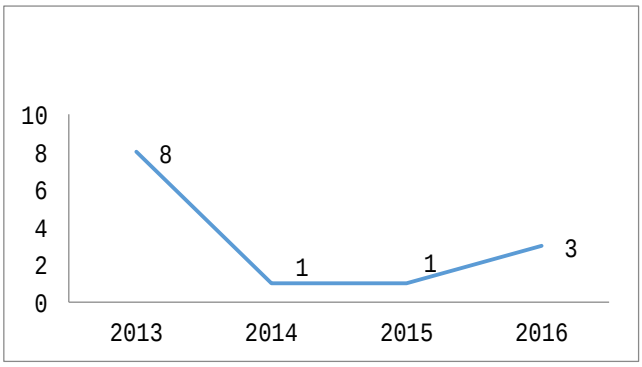
Ecode

Ecode 22 14 Ecode

2013



2-2-9 Ecode



2-2-10 Ecode

Ecode 20 13

Ecode

4.

Ecode Ecode



2-2-11 Ecode и

Ecode

2 Ecode

NoSQL

HDFS HAWQ Impala Presto Drill Spark Hive Pheonix

Mathworks SAS

SAP VMware Pivotal

CloudFoundry

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Hive E
Spark
Imala
Drill

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HAWQ
Pheonix

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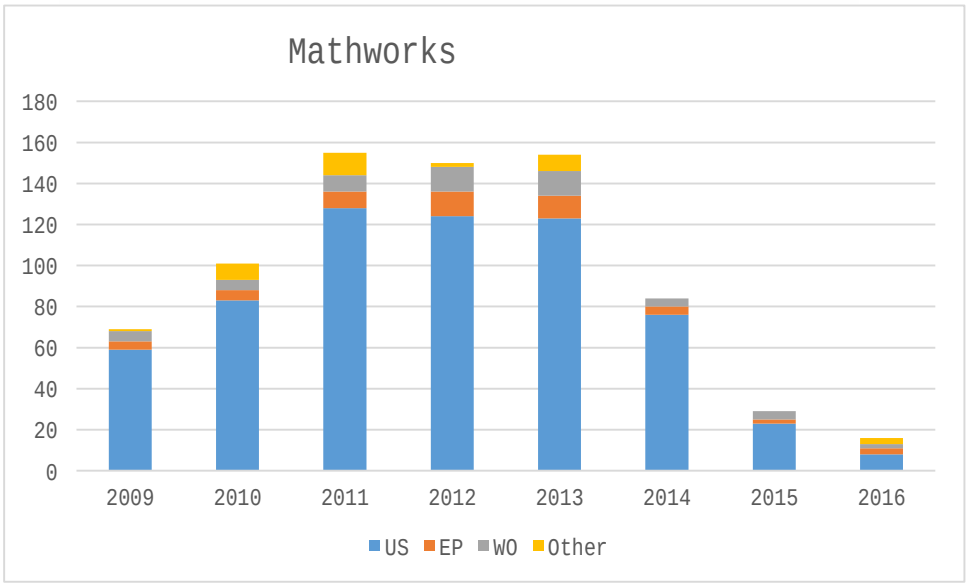
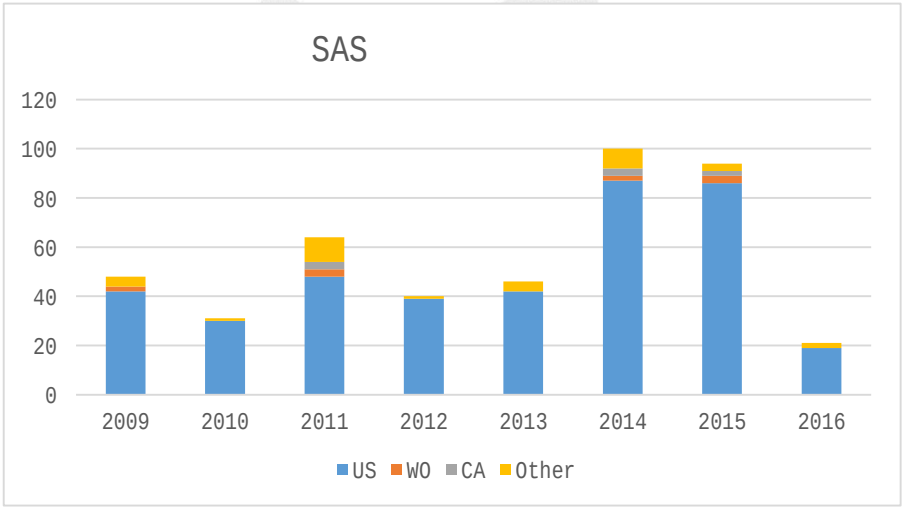
3.



2-3-7 Mathworks


SAS
120
100
80
60
40
20
0
2009
2010
2011
2012
2013
2014
2015
2016
US
WO
CA
Other

2-3-8 SAS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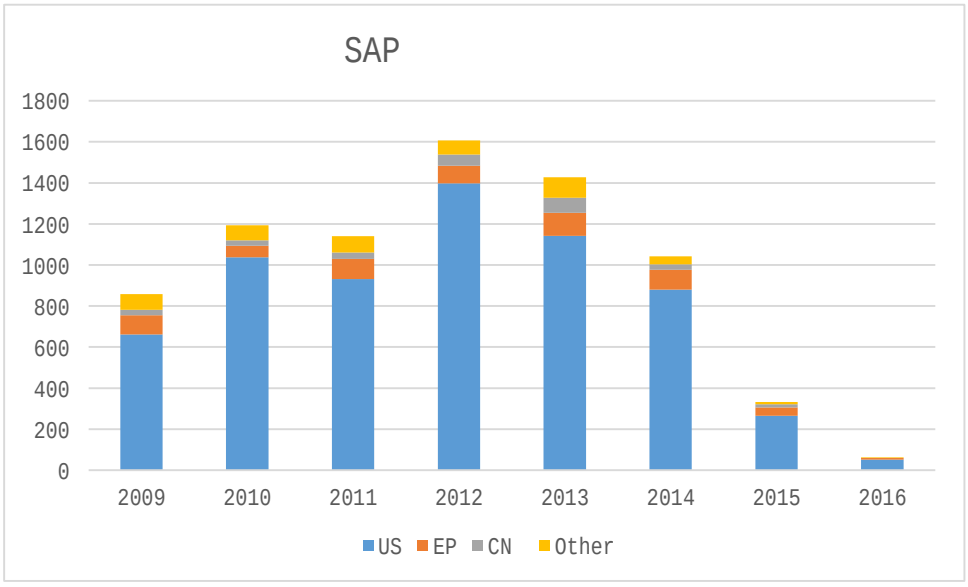

2-3-9 SAP

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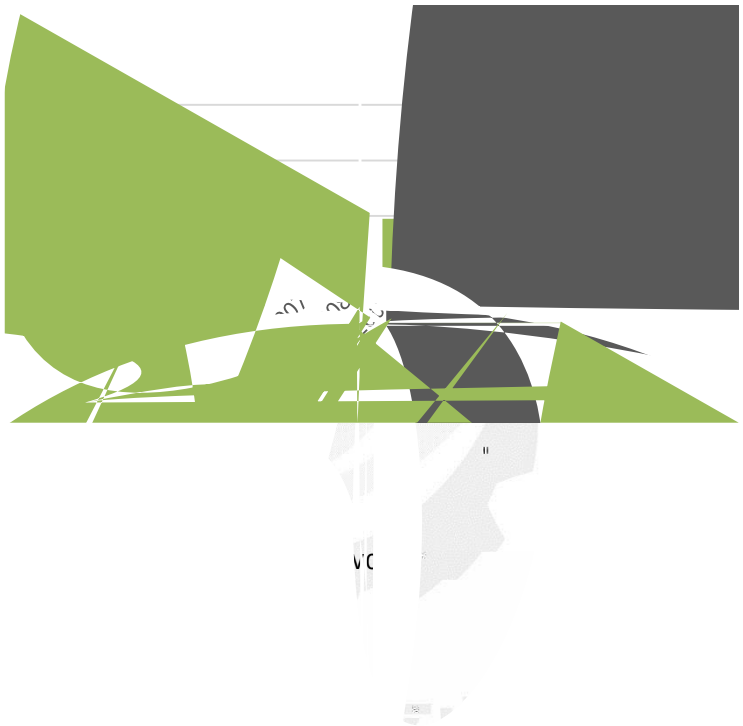
4.



ware

2014

40

85% 1%

Pivotal

Pivotal 35%

8% 8% 7%

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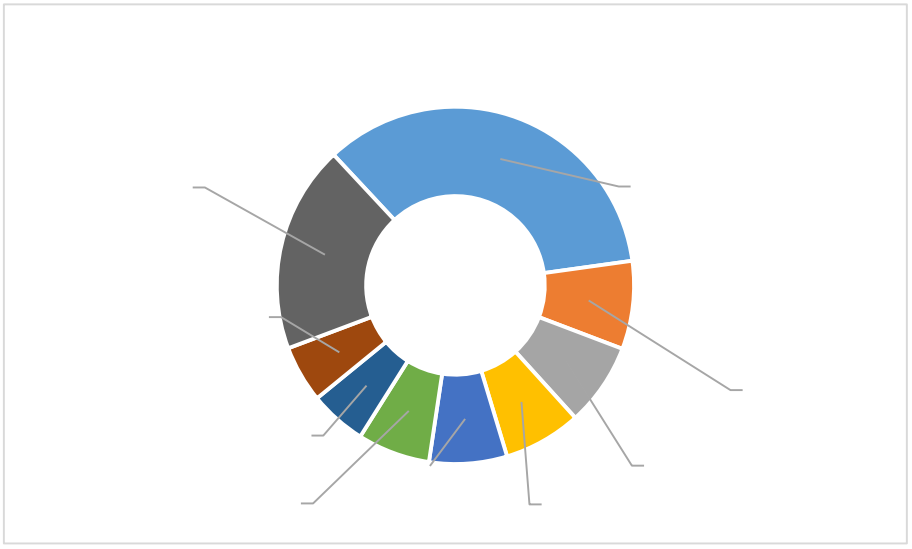
GreenPlum Hadoop GemFire



2-3-12 Pivotal IPC

VMware

PaaS Cloud Foundry1.0

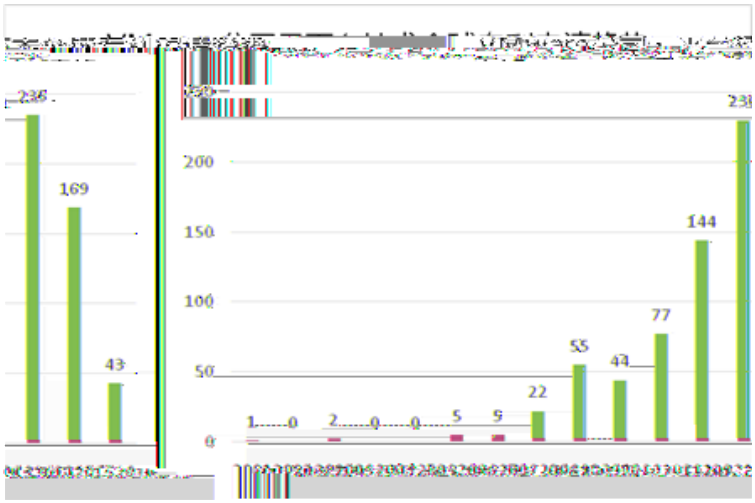
VMware 1032

2001 VMware 2008

VMware

2014 235

VMware



2-3-13 VMware

VMware 89%

VMware

2-3-14 VMware

VMware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