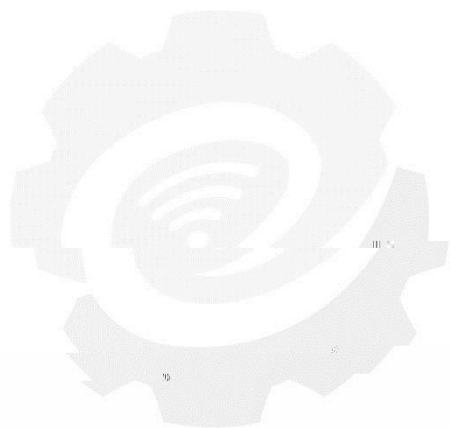


2016

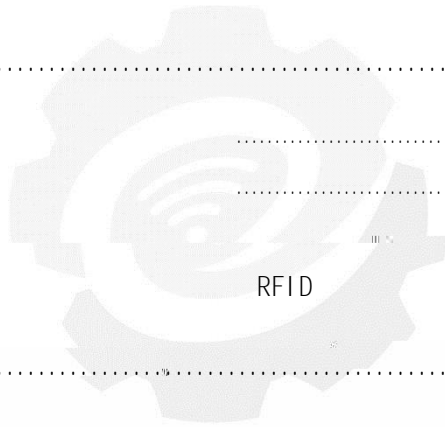


工业互联网产业联盟

AI I

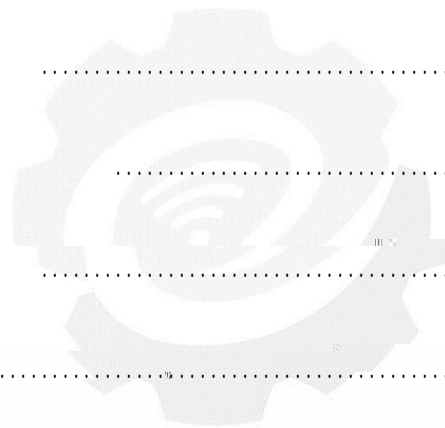
2017 7

1.ONS	11
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1.2 ONS	12
1.3 ONS	12
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工业互联网产业联盟

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工业互联网产业联盟

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工业互联网产业联盟

2-2-10

Ecode

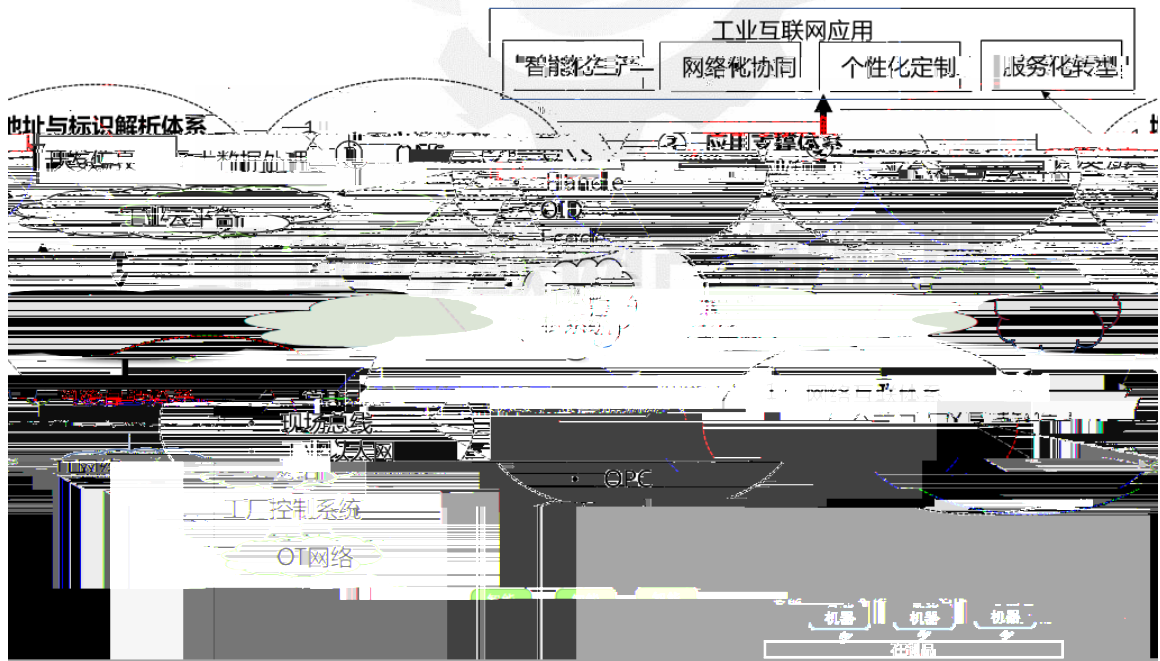
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工业互联网产业联盟

1

工业互联网体系架构体系目标体系



1

OPC/OPCUA

-

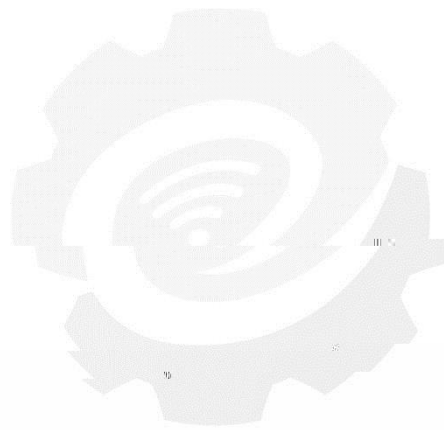
Handle

ONS

ONS Handle

OID Ecode

-



工业互联网产业联盟

1.

1.1

5671

1997

2010

1.2



2-1-2

45%

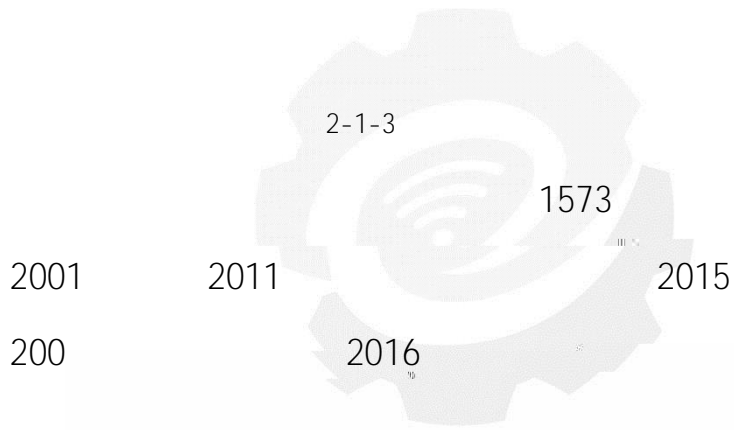
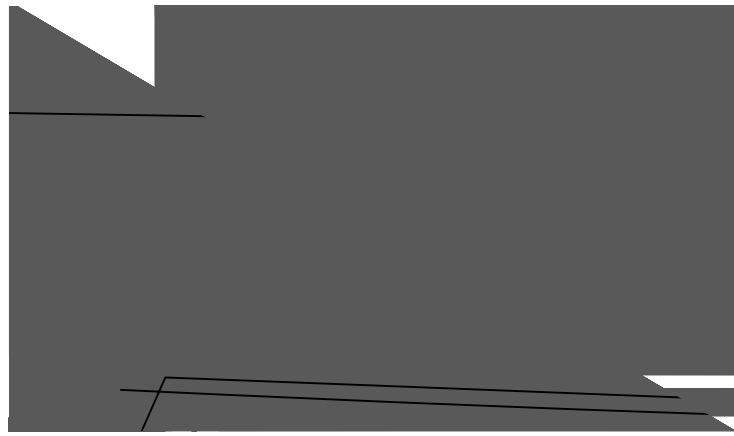
21%

1.3 Siemens ABB ROCKWELL GE

Siemens PROFIBUS
PROFINET ROCKWELL Devicenet Ethernet/Ip Siemens
ROCKWELL



PROFINET



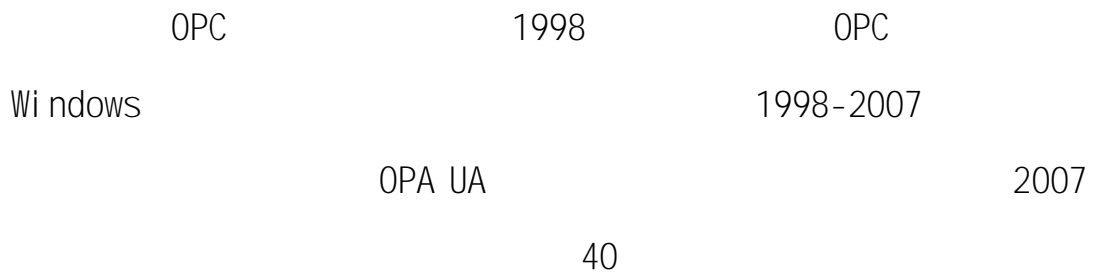
2.2

40%

23%

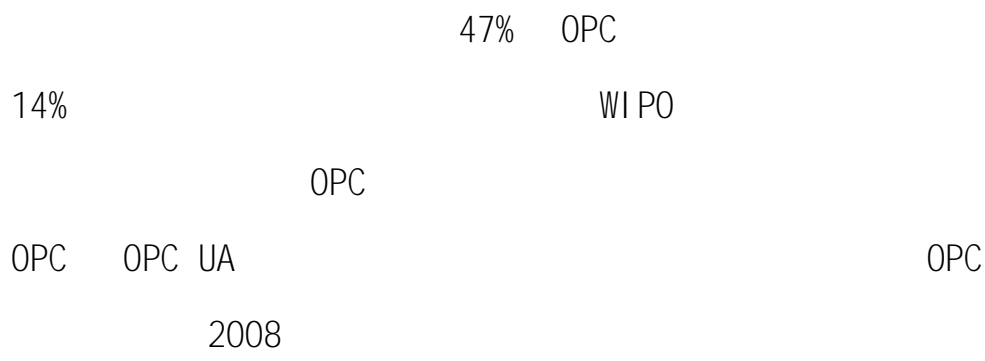
3. OPC/OPC UA

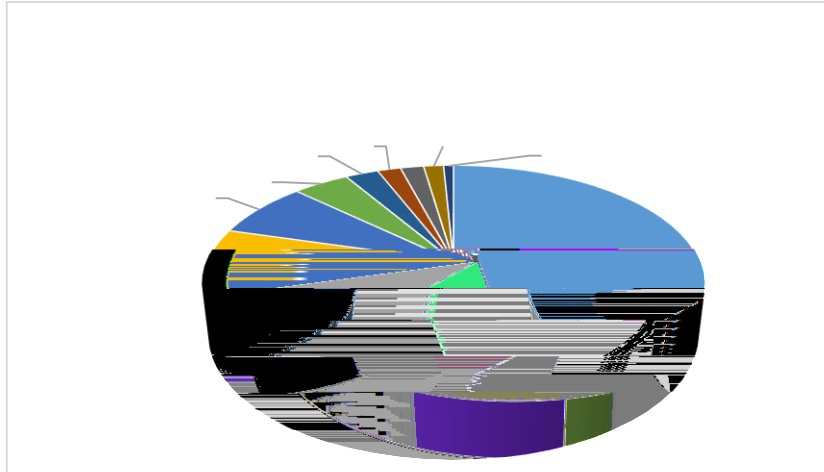
3.1 OPC/OPC UA 2012



工业互联网产业联盟 2-1-50PC

3.2 OPC





2-1-6 OPC

3.3 Siemens ABB

OPC

Siemens ABB

GE EMERSON FISHER-ROSEMOUNT

BOSCH ROCKWELL

OPC

ABB

Siemens

OPC

工业互联网产业联盟

Siemens ABB

3.4 OPC UA

PLC

2008

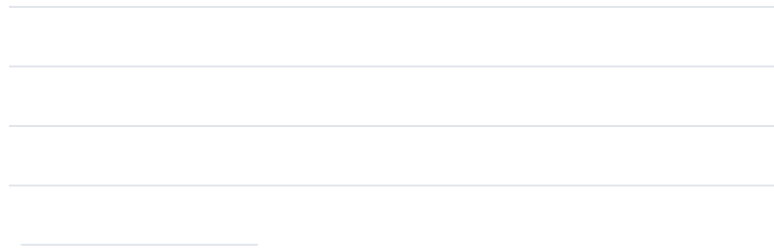
OPC

UA

OPC Classic

OPC

30% OPC UA



3.5 OPC UA

OPC UA

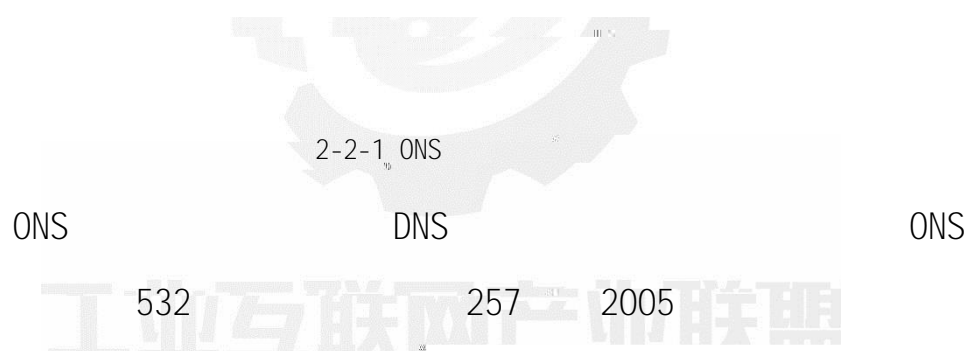
OPC UA

OPC UA

OPC UA

1. ONS

1.1 ONS



2-2-2 ONS

ONS

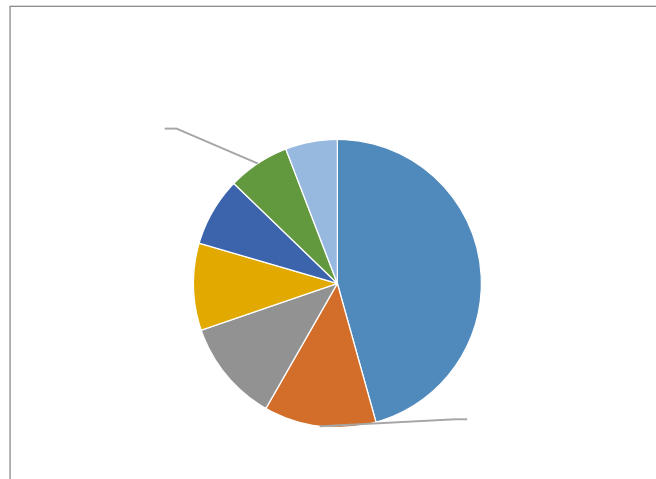
2012

2013

1.2

ONS

ONS



2-2-3 ONS

工业互联网产业联盟

AT&T IBM

GE (IIC)

1.3 ONS

Ci sco

ONS

80

IBM

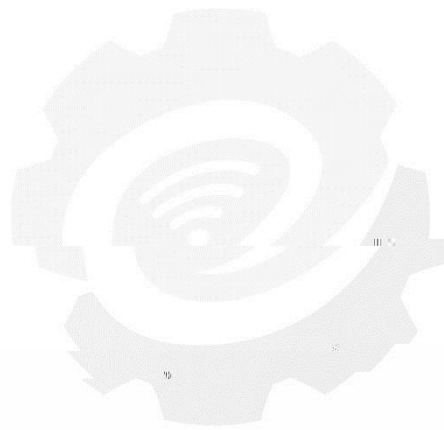
ONS

70

ONS

1.4 ONS

ONS



工业互联网产业联盟

2.2 Handle

Handle

Handle



2-2-5 Handle

工业互联网产业联盟

CONTENT DIRECTIONS

AMERICAN EXPRESS TRAVEL RELATE

2.4 Handle

Handle

3.0 ID

3.1 ID

Object Identifier, ID

ISO/IEC ITU

ID

2016 5 , ID

954393

ID

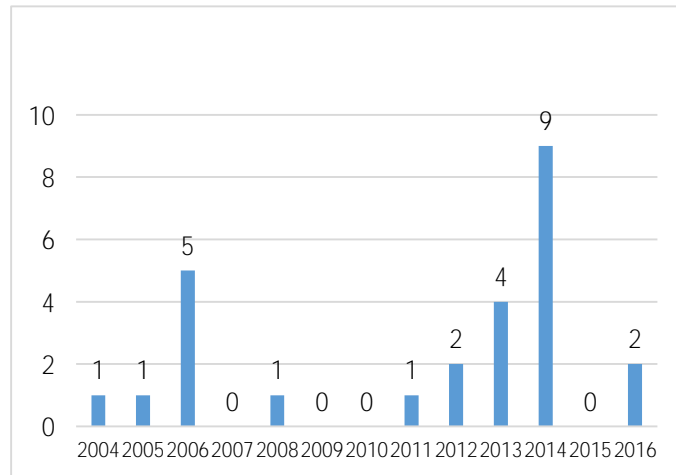
工业互联网产业联盟 RFID 3GPP

ID

130

56

2-2-6 OID



2015
ITU-T

2-2-7 OID

OID

OID

26

24

OID

2004

OID

OID

3.2 OID

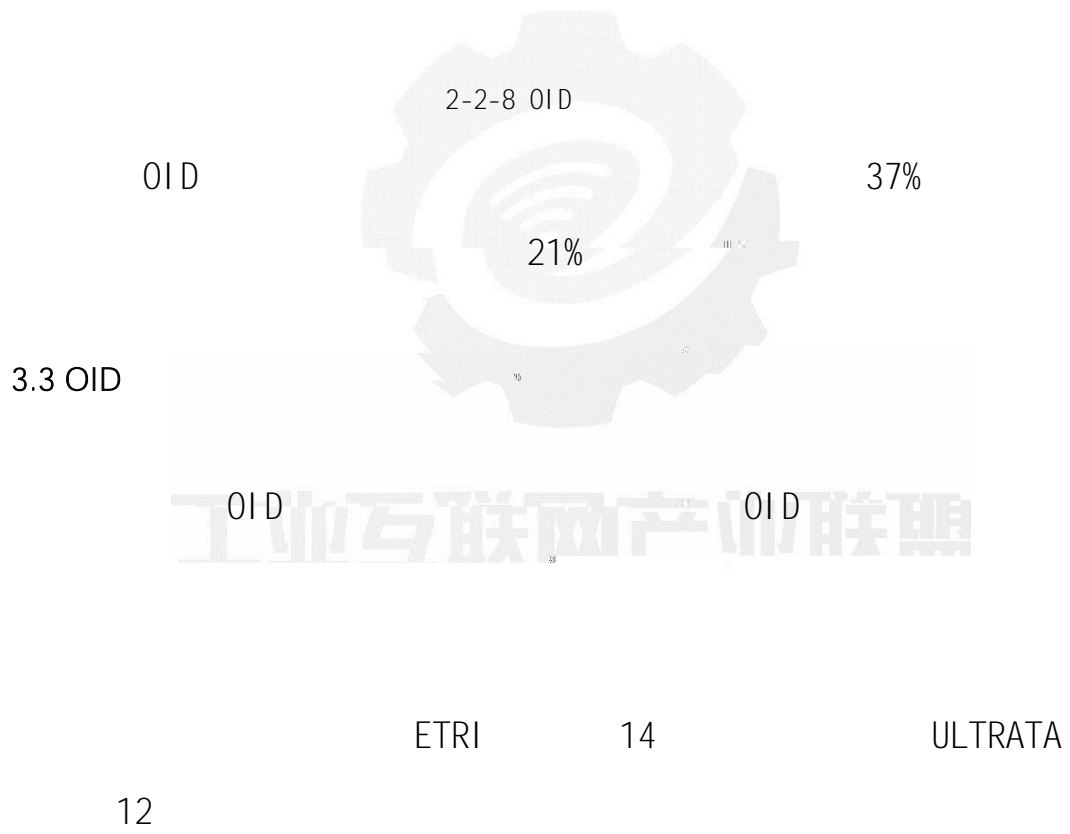
OID

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

ISO ISO-ITU

ISO ISO-ITU

OID



3.4 OID

RFID

OID

RFID

OID

4. Ecode

4.1 Ecode

2013

Ecode

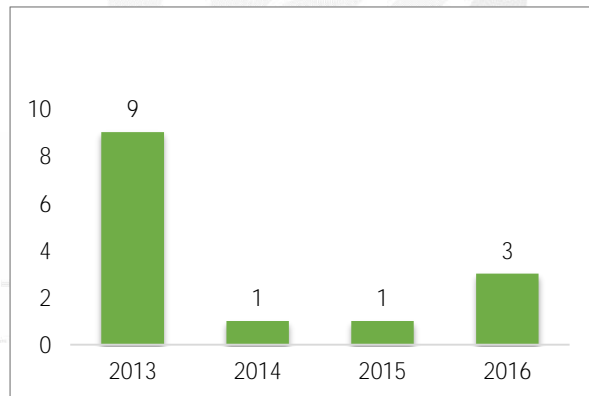
Ecode

22

14

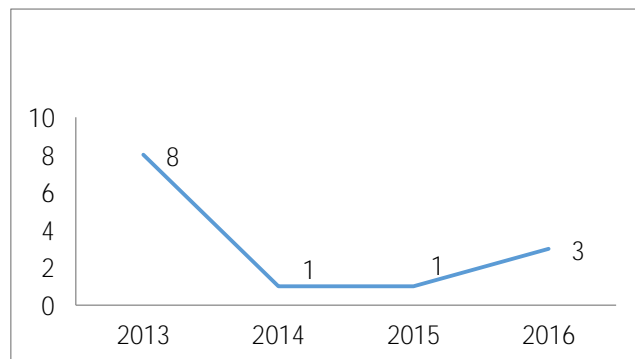
Ecode

2013



2-2-9

Ecode



2-2-10 Ecode

Ecode

20

13

Ecode

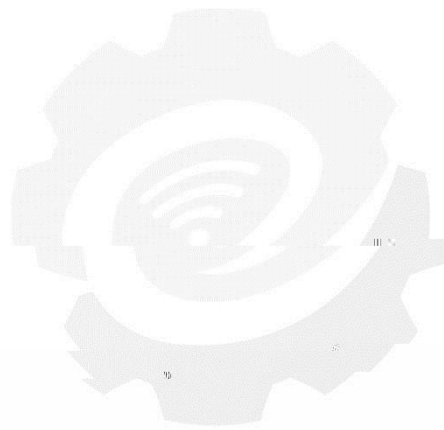
4.2. Ecode

4.

4.

Ecode

Ecode



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2-2-11 Ecode

Ecode

2 Ecode

4.4 Ecode

Ecode



1.

1.1 NoSQL

NoSQL

NoSQL

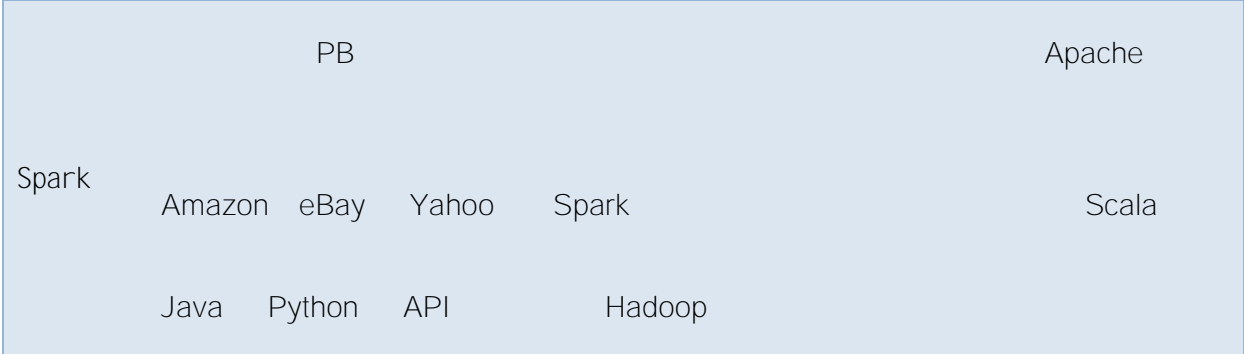
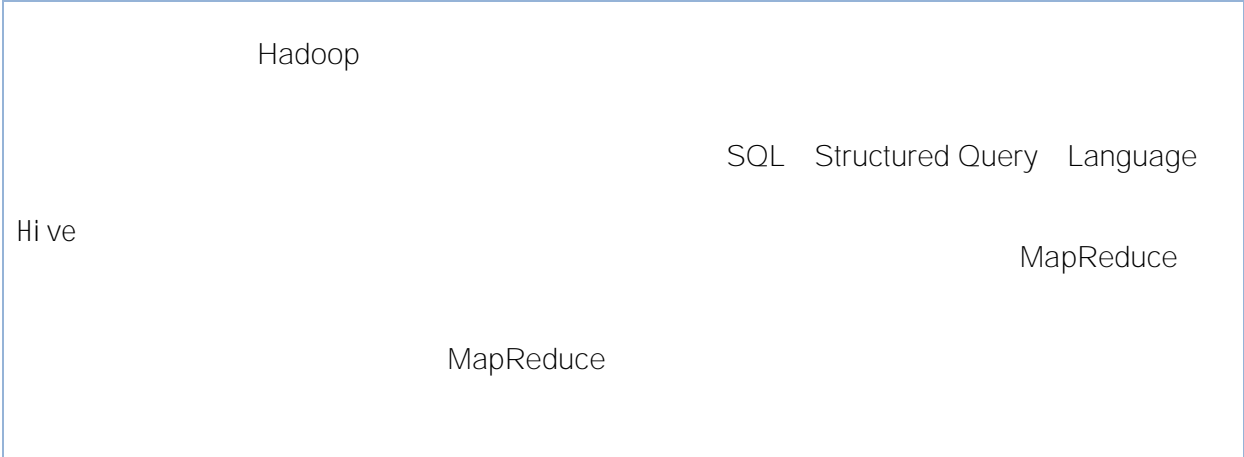
IBM

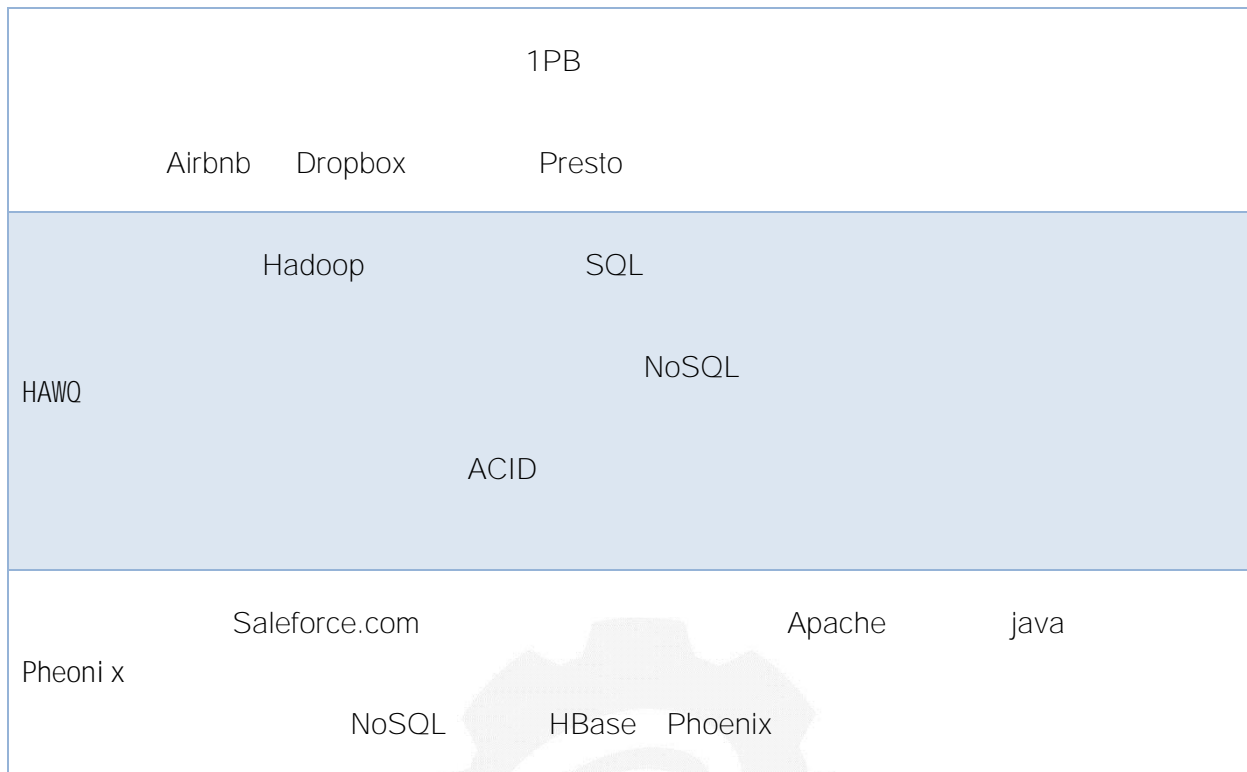


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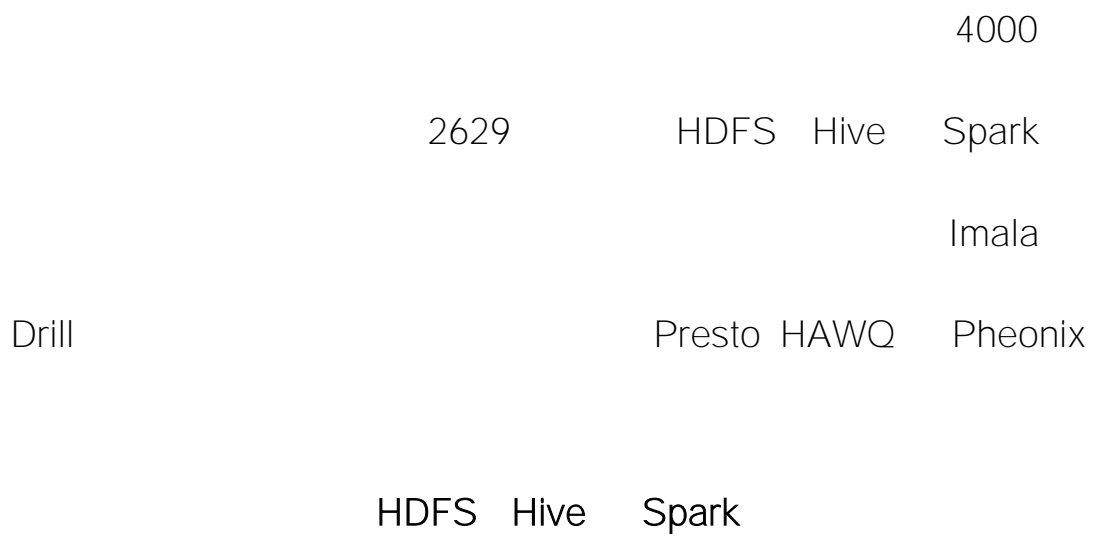


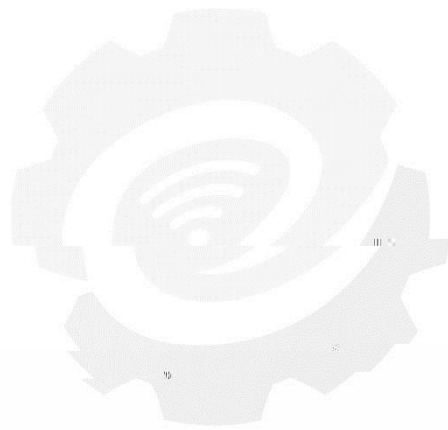


2.2

2.2.1 HDFS Hive Spark

2009 工业互联网产业联盟





工业互联网产业联盟

addo

Spark

2009

2016

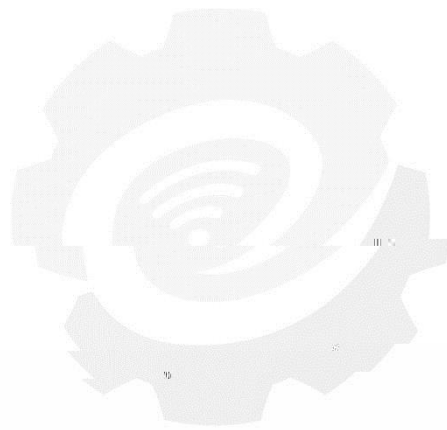
910

579

Spark

Hive

MapReduce



工业互联网产业联盟

HAWQ

2.2.2

24%



2-3-6

2.2.3 IBM FACEBOOKD 57BDC BT1 0 0 1 399.7 2850 1 4240BDC B/F16 14.04



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Hive

Hive

Hadoop

Spark

Spark

Spark



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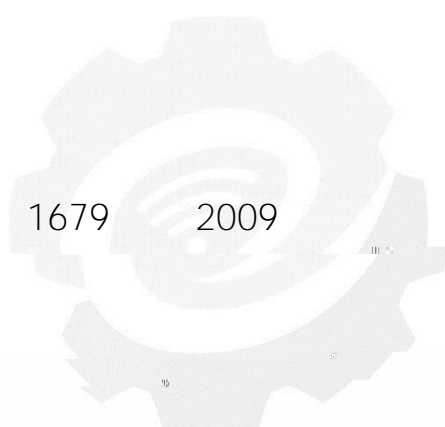
Pheonix

Pheonix

3.

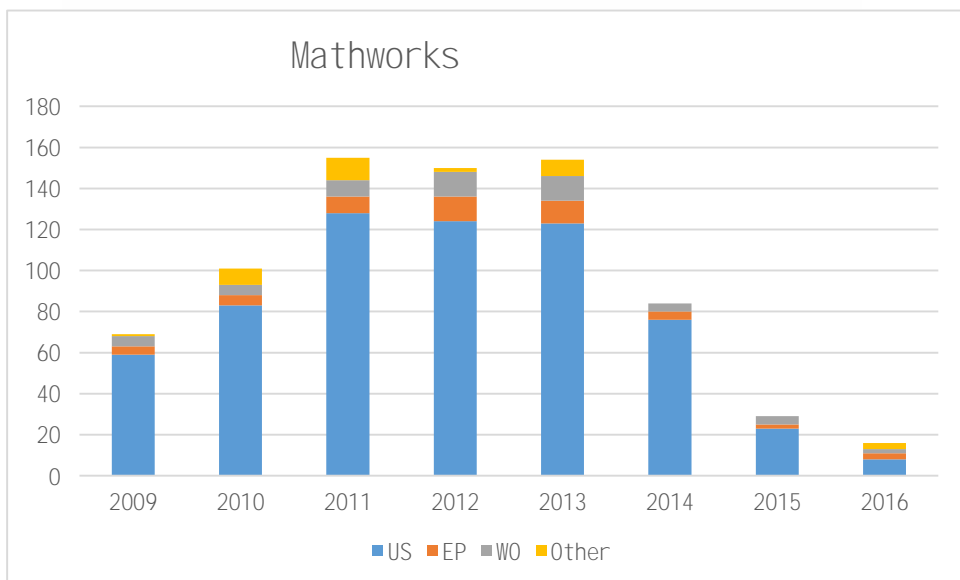
3.1 Mathworks

Mathworks



2011

2013



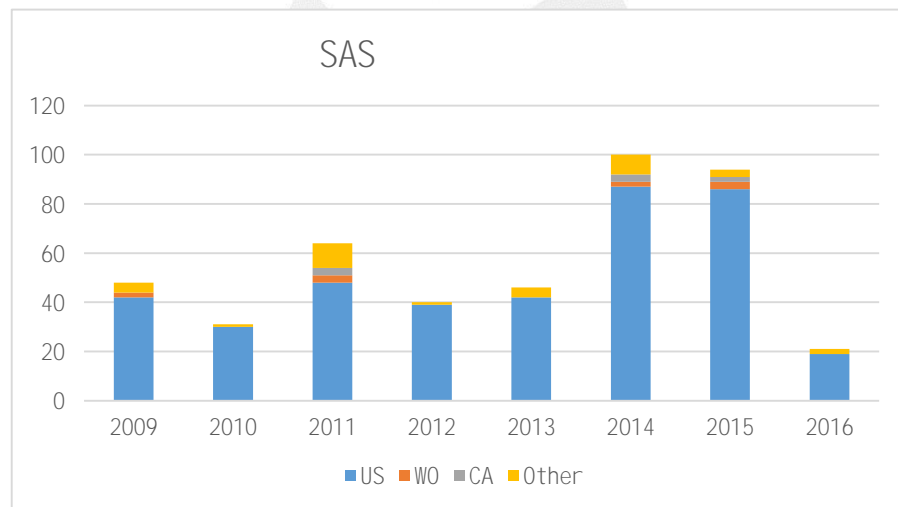
2-3-7 Mathworks

Mathworks

Mathworks

3.2 SAS

SAS



2-3-8 SAS

SAP

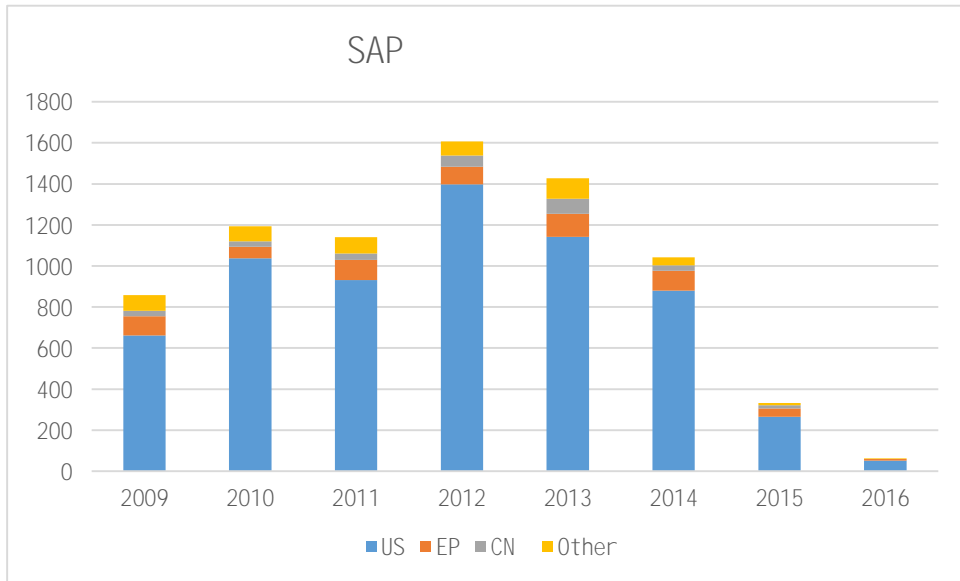
SAS INSTITUTE INC

694

2009



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4.

4.1 Pivotal software

Cloud Foundry

GreenPlum

Pivotal software

Pivotal

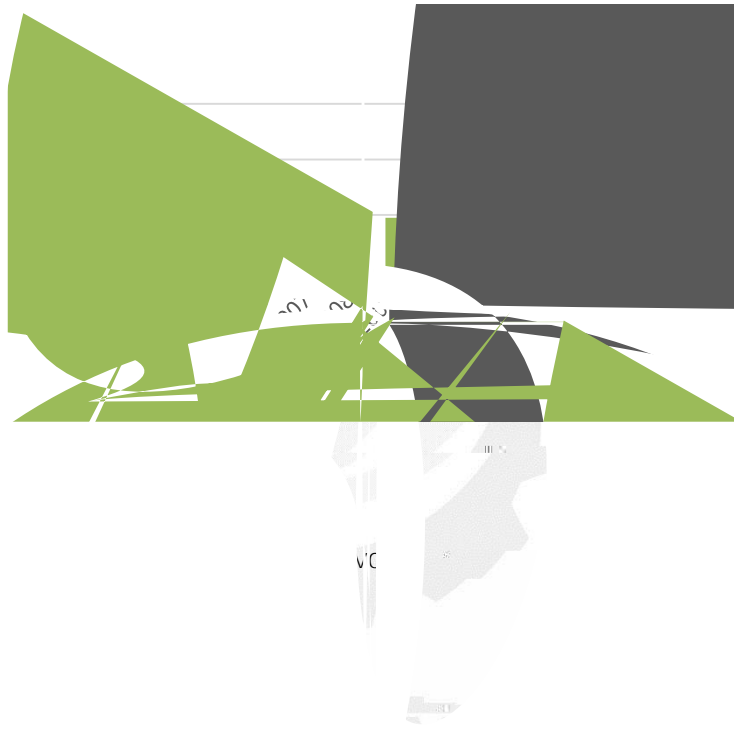
Pivotal One

Pivotal

Pivotal

4.1.1 Pivotal

VMware EMC



IP

18

ware

Pivotal

2014

40

Pivotal

85%

1%

Pivotal

12306

4.1.3 Pivotal

Cloud

Foundry GreenPlum

Pivotal

35%

8%

8%

7%



Pivotal

stream processing

mirror database

GreenPlum

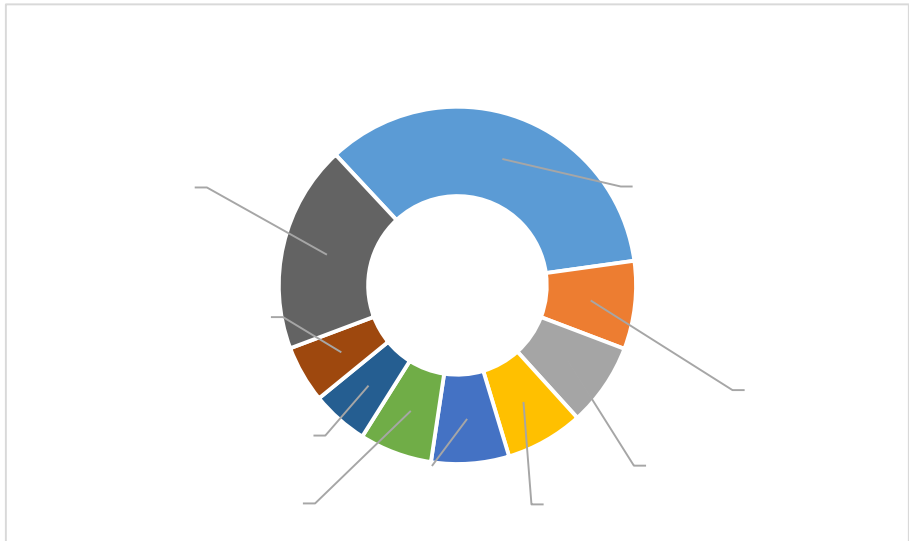
Hadoop

GemFire

Spring

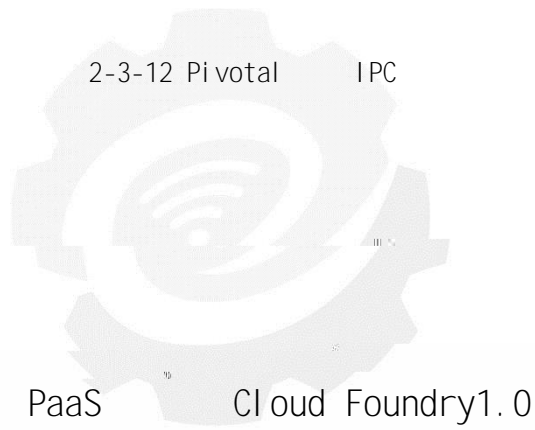
MySQL Dev

Cloud Foundry



4.2 VMware

VMware



4.2.1 VMware

VMware

1032

2001

VMware

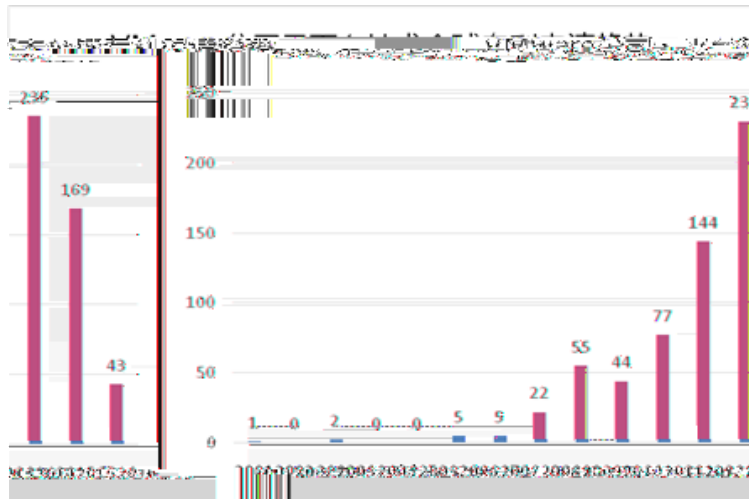
2008

VMware

2014

235

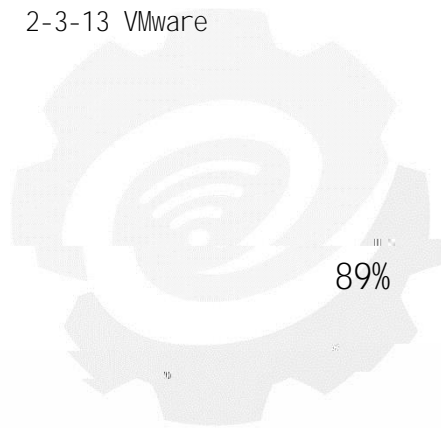
VMware



2-3-13 VMware

4.2.2 VMware

VMware



VMware

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2-3-14 VMware

VMware

