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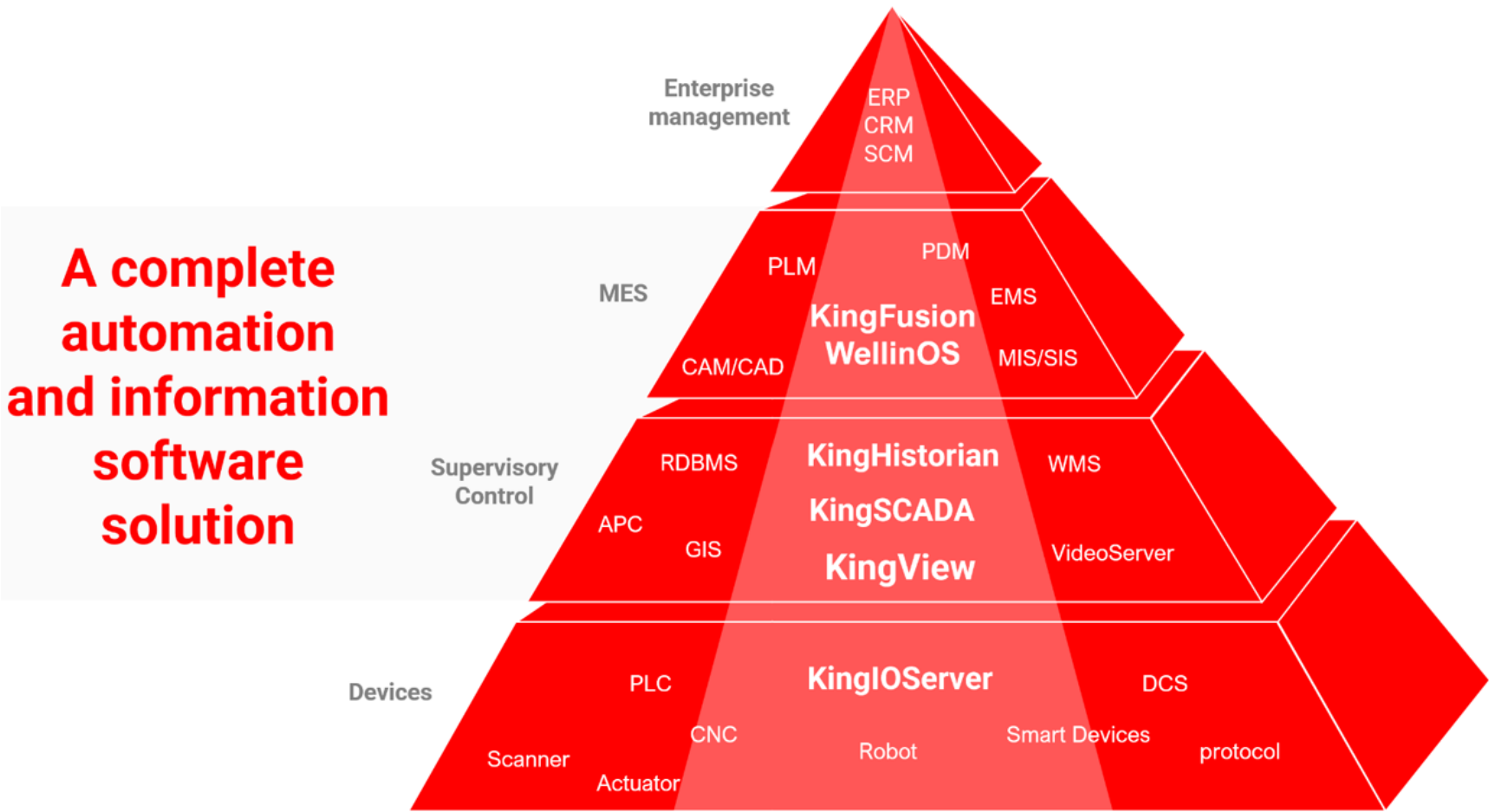
- **SCADA**(*KingSCADA , KingView*)
- **Data Connectivity** (*KingIOServer*)
- **Industrial Historian** (*KingHistorian*)
- **MES Platform**(*WellinOS, KingFusion*)



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China's Largest Automation Software Company





KingIOServer 3.8 **SP2**

Product Introduction

Extensive Device Support

Open-Interfaces

Data Acquisition Scheme

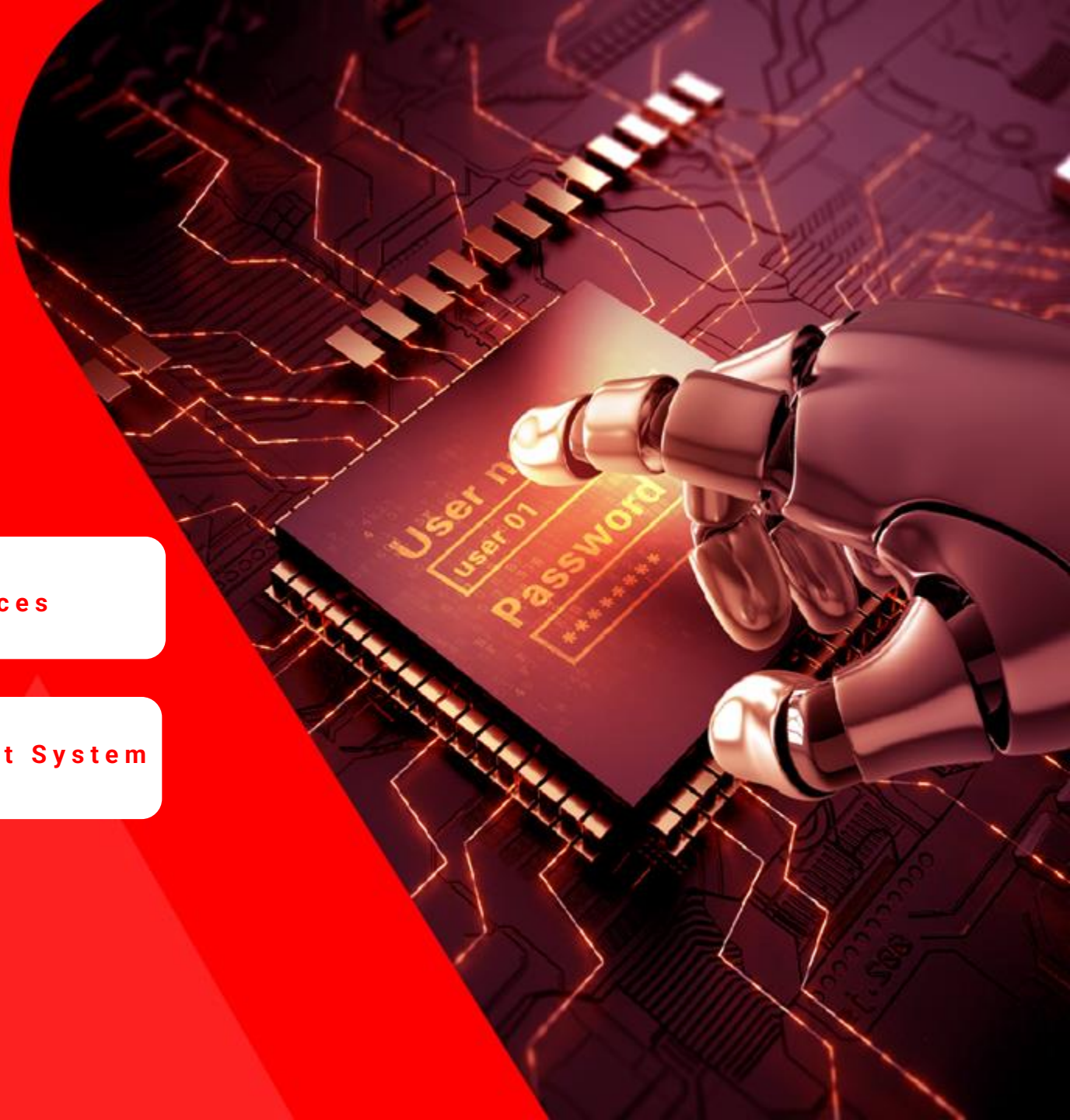
Driver Development System



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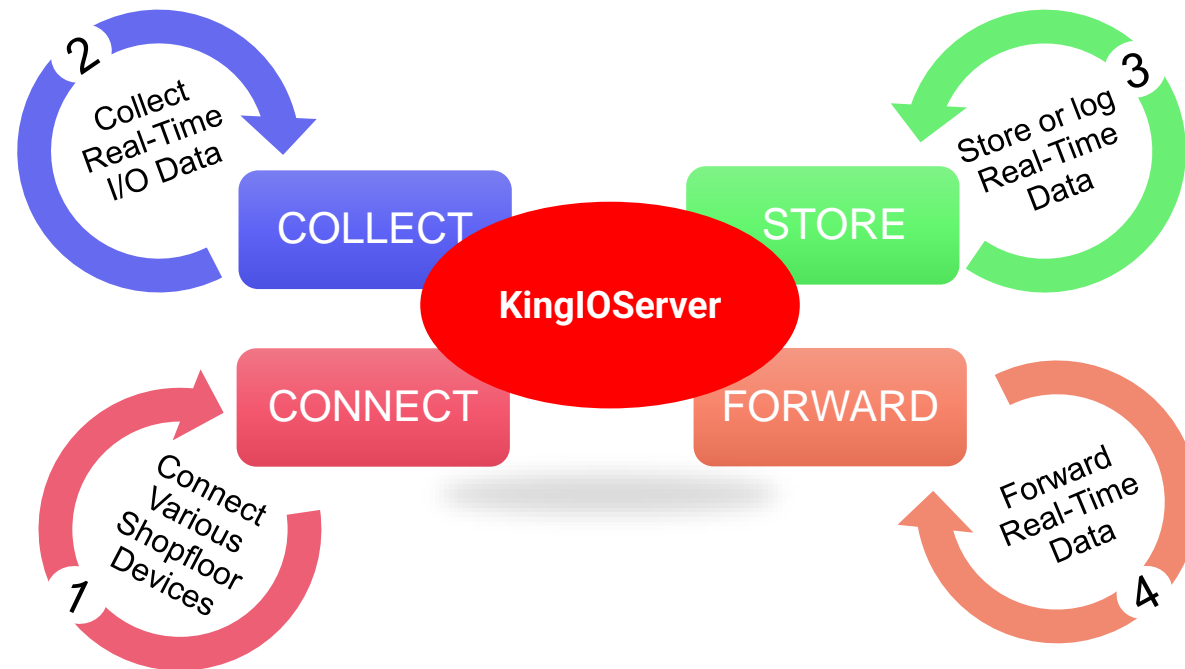
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- 7 Hands-On Demo**

01

KingIOServer Introduction

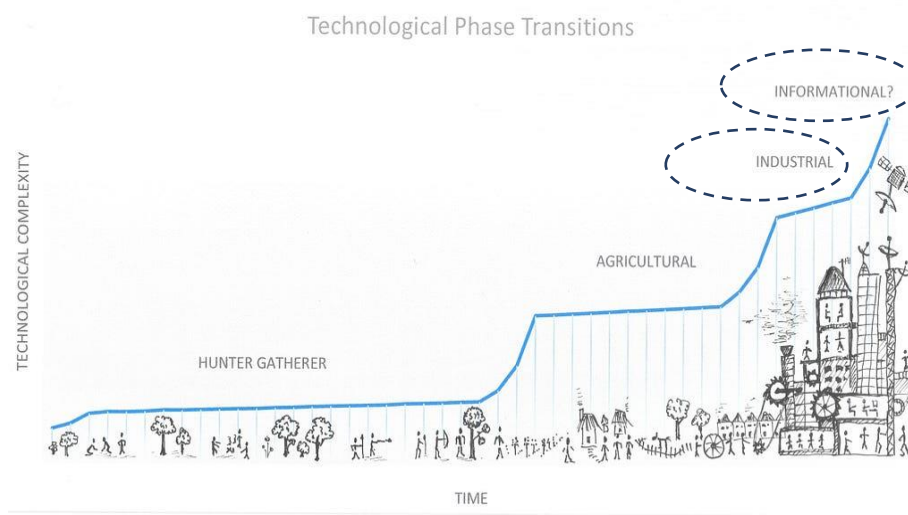
Industrial Data Connectivity Platform



02

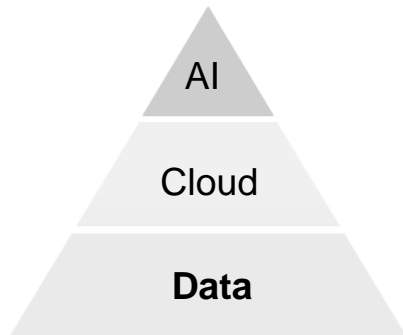
KingIOServer Development Background

Industrial Data Collection is Driving Smart Manufacturing



Credit: Tony Seale(source: <https://experiencestack.co/embrace-complexity-part-1-39483f10a47f>)

Digital Factory



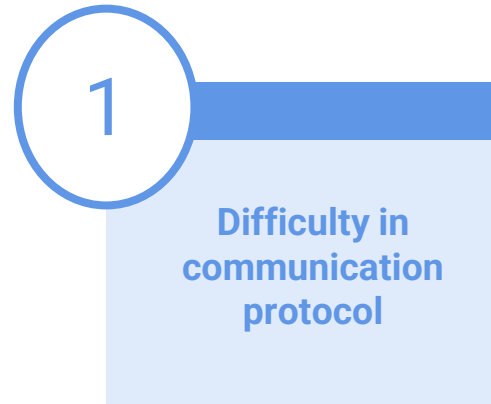
Three main driving forces: **Data**, Cloud & AI

Data is the key to realize intelligent manufacturing, and data collection is the basis of industrial Internet and intelligent manufacturing.

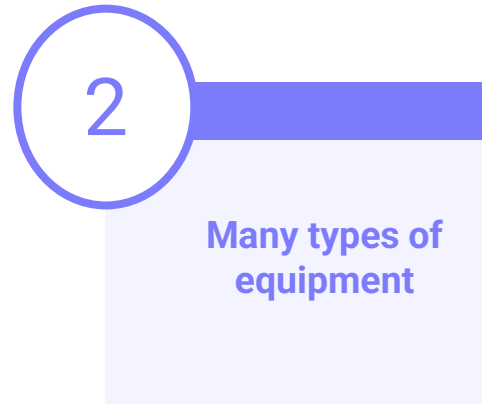
Equipment integration, data collection has been paid more and more attention, the need to be able to support a large number of protocols, integration capabilities of the platform products;

There are many ways of data collection, and the degree of automation of data collection needs to be improved.

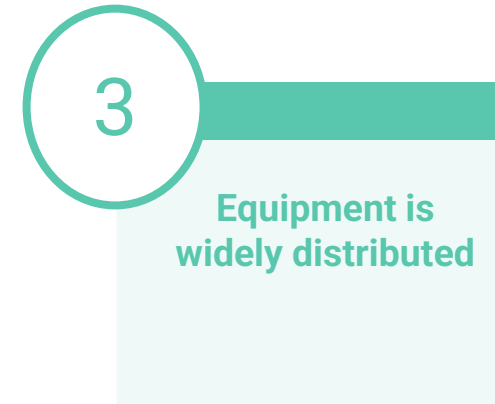
Difficulties in Industrial Data Collection



- The communication protocol is complex
- Some protocols are not open



- Many types of equipment
- Many types of protocols
- Many types of interface



- Devices are located in a wide range of locations
- Requires wired, wireless, satellite, support

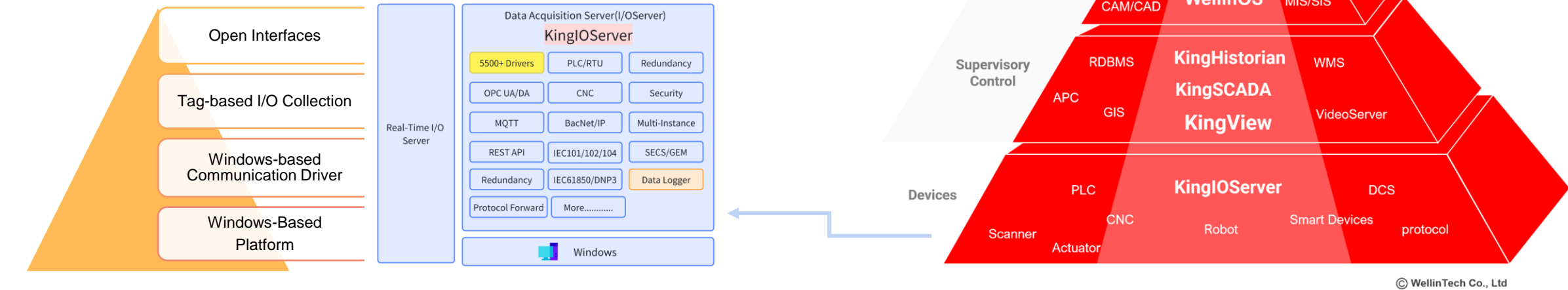


In order to solve the above-mentioned industrial field acquisition problems, **KingIO Server(KIO)** came into being.

Positioning

KingIO Server is an Windows-based independent industrial data connectivity software used for data collection, storage , forwarding and integration.

It was developed with independent research and development by WellinTech.
It has windows-based as well as Linux-based versions.



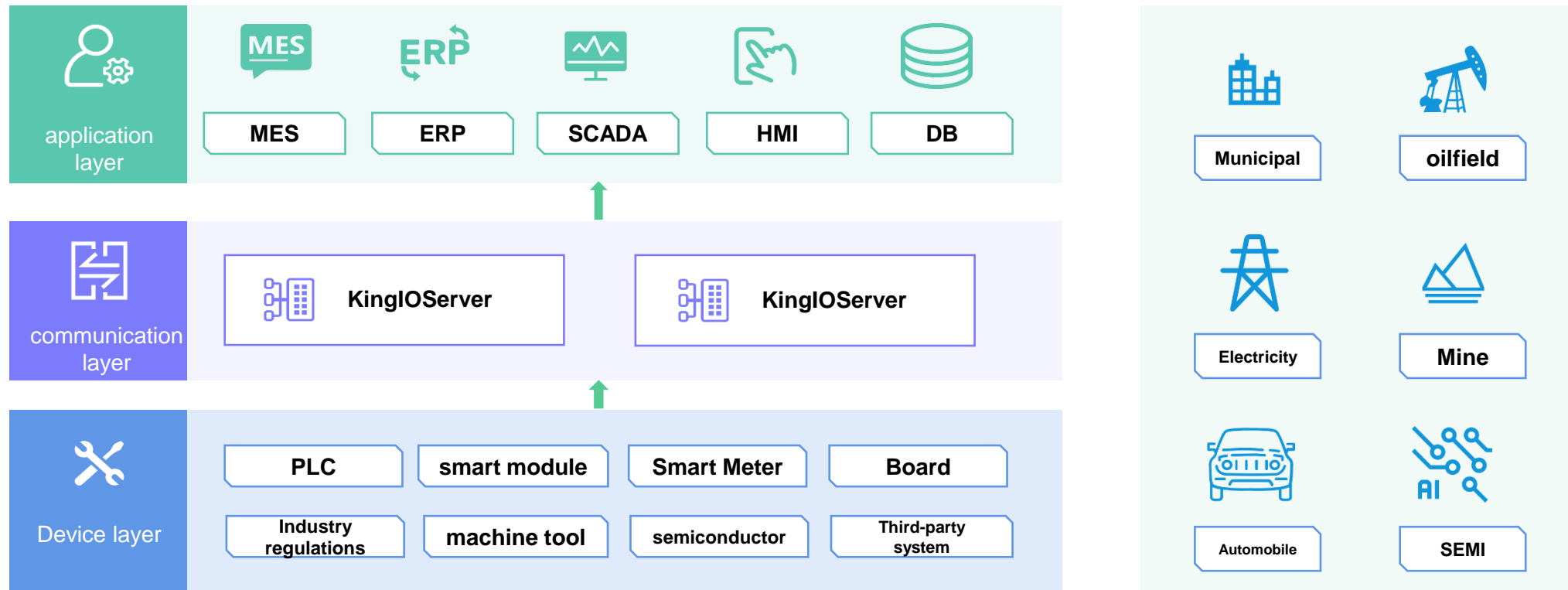
Installed in Windows, Uses various Windows-based industrial communication protocols drivers to collect real-time I/Os from field devices.

03

KingIOServer Application Scenario Architecture

Standalone Data Acquisition






The users need to realize the data collection through drivers and push/store data to higher system through open interfaces of KingIO Server. Standalone Architecture is simple, easy to maintain and most budgetary.



04

KingIOServer Function Introduction

Extensive Device Support

-  Support TCP/IP, RS232/485 and WIFI, 5G, GPRS and other wired and wireless communication methods
-  Support multi-industry standard communication protocols such as electric power, environmental protection, building, semiconductor, etc.
-  Support standard OPC DA, OPC UA interface to collect data
-  Support collecting third-party system data through REST and MQTT
-  Support custom development of device drivers



Extensive Device Support

- Support more than 1500 manufacturers, more than 5000 protocol drivers.
- Support DNP, MQTT, power, environmental protection and other standard protocols
- Supports the acquisition of third-party system data access.
- Supports custom development device drive.



Extensive Device Support

序号	设备类型	生产厂家	设备名称	通讯描述
1	Boards	DDE	DDE_FS	COM
2	DDE	DDE	DDE	DDE
3	Device	WellinTech	Email	TCP
4	Device	WellinTech	EmailPOP3	TCP
5	Intelligent Instrume	BAITE	XM	COM
6	Intelligent Instrume	coulombmeter	Complex fee table	com
7	Intelligent Instrume	coulombmeter	function table	com
8	Intelligent Instrument	Gold&Stone	XMT	串口
9	Intelligent Meter	BRIMET	BRIMET_Spray	TCP
10	Intelligent Meter	CASICloud	htdata_RESTful	HTTP
11	Intelligent Meter	ChinaGAS	KSdtu_ModTancyCn	COM
12	Intelligent Meter	ChinaGAS	KSdtu_ModTancyCn	COM/TCP
13	Intelligent Meter	CNM	Cnmodbus_DTU	TCP/UDP
14	Intelligent Meter	CNM	EVC300_DTU	
15	Intelligent Meter	DHTECH	DH1766	TCP
16	Intelligent Meter	ElecProtocol	IEC61850	TCP
17	Intelligent Meter	GB	DL_T645	COM
18	Intelligent Meter	GB	DLT645_2007	COM
19	Intelligent Meter	GB	SL651_2014	COM
20	Intelligent Meter	Gemple	EasyPro	COM
21	Intelligent Meter	GZQD	DopplerVelocimeter	TCP-Server
22	Intelligent Meter	HARBIN ELECTRIC	GR_SGP51000	COM
23	Intelligent Meter	HUIZHONG	HZG7120	TCP
24	Intelligent Meter	ICEL	Sigma	TCP
25	Intelligent Meter	IEC	DNPV30_serial	COM/TCP/UDP
26	Intelligent Meter	IEC104	DL104	TCP/IP
27	Intelligent Meter	IESLAB	IES_E10J	TCP/UDP
28	Intelligent Meter	IESLAB	IESLAB_RTU	TCP/UDP
29	Intelligent Meter	IWECAN	G80X	TCP
30	Intelligent Meter	JSYL	JSYL_HJT212_2017	TCP
31	Intelligent Meter	JSYL	JSYL_HJT212_Ex	TCP
32	Intelligent Meter	KEYENCE	LS7000	COM
33	Intelligent Meter	LAND	LANDmeter	TCP
34	Intelligent Meter	LINE	LineMeter	COM
35	Intelligent Meter	LinksChina	Links_meter	COM
36	Intelligent Meter	LUNCI	LUNCImodbus	TCP/UDP
37	Intelligent Meter	MIRION	MIRION	TCP

序号	设备类型	生产厂家	设备名称	通讯描述
38	Intelligent Meter	Modicon	modbusASCII_DTU	TCP/UDP
39	Intelligent meter	Nanping Toda	CircuitDector	COM
40	Intelligent Meter	NBCSYB	NBCSYB_modbus	COM
41	Intelligent Meter	nmixgroup	nmixgroup_kh	COM
42	Intelligent Meter	OHAUS	EXPLORER	COM
43	Intelligent Meter	Ploumeters	RS485modbus	UDP/TCP
44	Intelligent Meter	PQDIF	DLT645_DTU1997	TCP/UDP
45	Intelligent Meter	PQDIF	DLT645_DTU2007	TCP/UDP
46	Intelligent Meter	QDHB	QD_hjt212_2017	TCP
47	Intelligent Meter	QZWW	LXLC_100	COM
48	Intelligent Meter	RedLion	RedLionCF	COM
49	Intelligent Meter	Rosemount Inc	HART	COM
50	Intelligent Meter	RUINIA	RUINIA_Heatmeter	TCP-Client
51	Intelligent Meter	SIHONG	LuTCP	TCP
52	Intelligent Meter	SAILHERO	SAILHERO_ADCP	COM
53	Intelligent Meter	SIEMENS	SIMENSKNX	USB
54	Intelligent Meter	Simaden	FP23	COM
55	Intelligent Meter	Simaden	FP93	COM
56	Intelligent Meter	Simaden	SR25	COM
57	Intelligent Meter	Simaden	SR253	COM
58	Intelligent Meter	Simaden	SR53	COM
59	Intelligent Meter	Simaden	SR73	COM
60	Intelligent Meter	Simaden	SR82	COM
61	Intelligent Meter	Simaden	SR83	COM
62	Intelligent Meter	Simaden	SR84	COM
63	Intelligent Meter	Simaden	SR91	COM
64	Intelligent Meter	Simaden	SR92	COM
65	Intelligent Meter	Simaden	SR93	COM
66	Intelligent Meter	Simaden	SR94	COM
67	Intelligent Meter	SLBZ	SLBZ_HbV2	TCP
68	Intelligent Meter	SNMP	SNMP	UDP
69	Intelligent Meter	SUN MUCLEAR	Radon1027	COM
70	Intelligent Meter	SYHW	UserFurnace	TCP
71	Intelligent Meter	TaiYuanSeven	CAM_1	COM
72	Intelligent Meter	TESA	TT60	COM
73	Intelligent Meter	THORLABS	DC4104	USB
74	Intelligent Meter	tchjk	tchjk_lighting	TCP
75	Intelligent Meter	Wanlida	Wanlida104	TCP
76	Intelligent Meter	Wanlida	WLD103	COM
77	Intelligent Meter	whrdgroup	whrdgroupModbus	DTU
78	Intelligent Meter	whrdgroup	whrdgroupModbus	TCP
79	Intelligent Meter	XAHYQ	BH3208	COM

序号	设备类型	生产厂家	设备名称	通讯描述
4641	智能仪表	浙江蓝箭	BlueArrow_XK315A	COM
4642	智能仪表	浙江南瑞	NR_630	COM
4643	智能仪表	浙江天信	KSdtu_TancyCPUV10	COM
4644	智能仪表	浙江天信仪表	KSgprs_ZHJTX_FW13	COM
4645	智能仪表	浙江天信仪表	LUZX150	串口
4646	智能仪表	浙江天信仪表	TXXB_V13	COM
4647	智能仪表	浙江天信仪表	旋进式流量计	串口
4648	智能仪表	浙江天信仪表	智能型流量计	串口
4649	智能仪表	浙江天信仪表	智能型流量计	串口
4650	智能仪表	浙江天信仪表	智能型流量计(V1.3)	COM
4651	智能仪表	浙江万马	EDI339	COM
4652	智能仪表	浙江优特电气	YTD800T	COM
4653	智能仪表	浙江中电	ZDL-智能流量积算仪(无热量)	DTU
4654	智能仪表	浙江中电	ZDL-智能流量积算仪(无热量)	COM
4655	智能仪表	浙江中电	ZDL-智能流量积算仪(有热量)	DTU
4656	智能仪表	浙江中电	ZDL-智能流量积算仪(有热量)	COM
4657	智能仪表	浙江舟山欣亚磁电	8300	COM
4658	智能仪表	浙江舟山欣亚磁电	CTYK2010	COM
4659	智能仪表	浙江舟山欣亚磁电	ED200	COM
4660	智能仪表	浙江舟山欣亚磁电	ED212HL-F02	COM
4661	智能仪表	浙江舟山欣亚磁电	JFC-320GZ	COM
4662	智能仪表	志恒伟业	JN_W16B	COM
4663	智能仪表	志美电子	C81000S 配料控制器	COM
4664	智能仪表	志美电子	C8920	COM
4665	智能仪表	志美电子	CB920X	COM
4666	智能仪表	志美电子	pr650c	COM
4667	智能仪表	志美电子	PT650D	COM
4668	智能仪表	志美电子	PT650D	TCP
4669	智能仪表	志美电子	PT650D	串口
4670	智能仪表	志美电子	通用称重仪表	COM
4671	智能仪表	智能弯管流量计	ZLRJ	com
4672	智能仪表	智能仪表	YOKOGAWA_WT1800	TCP
4673	智能仪表	智腾自动化	ZTZDH_AGV	COM
4674	智能仪表	中福院	Cam2	COM
4675	智能仪表	中国航天员中心	MKS651C	COM
4676	智能仪表	中核控制	CNCS_DCS	UDP
4677	智能仪表	中检维康	BAI9100	COM
4678	智能仪表	中金博奥	WebService_TDB23	TCP
4679	智能仪表	中联重科	ZL_Interface	TCP
4680	智能仪表	中能三原	SYDL2105	COM
4681	智能仪表	中能三原	ZN2000	COM
4682	智能仪表	中山凯旋	HIOKI_3511_50	COM

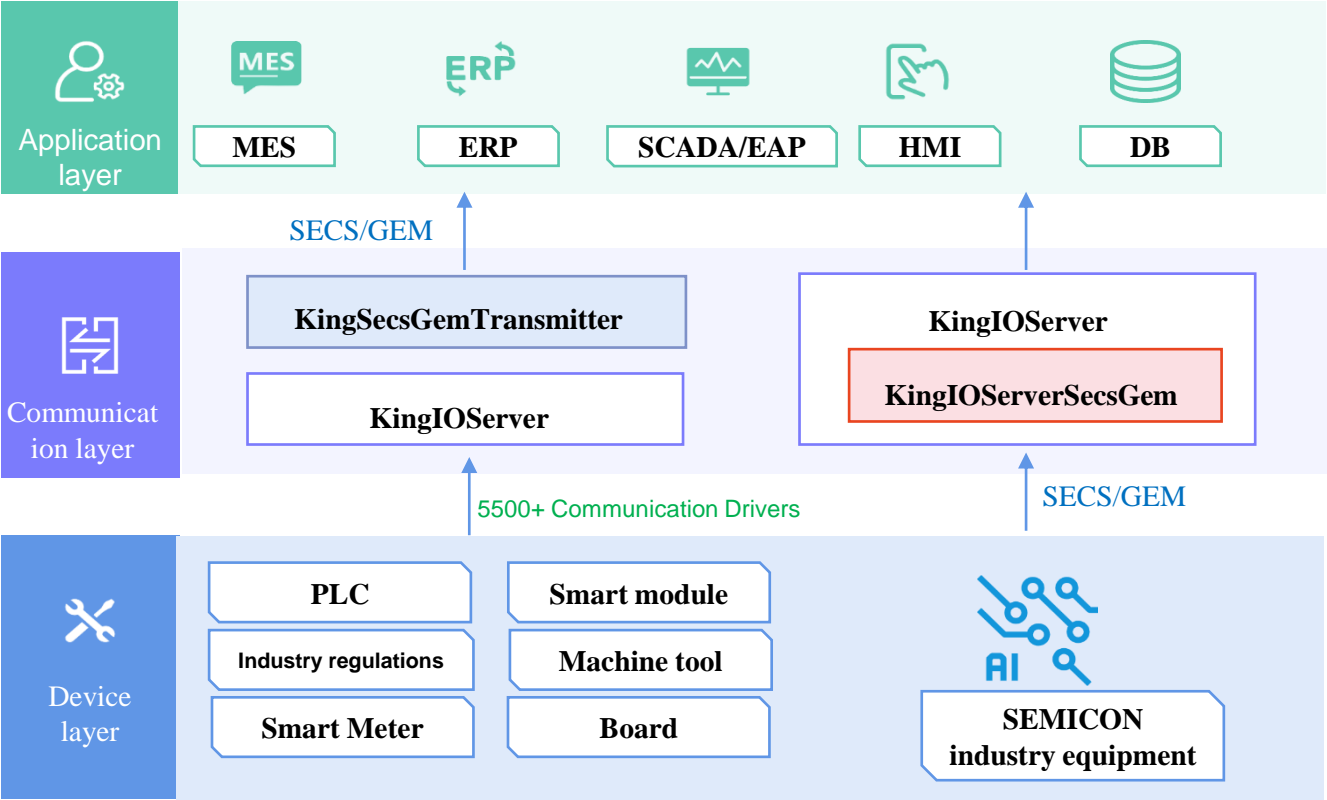
北京亚控科技发展有限公司 亚控科技 VellinTech

序号	设备类型	生产厂家	设备名称	通讯描述
4683	智能仪表	中星测控	倾角传感器	COM
4684	智能仪表	中星测控	双轴倾角传感器	COM
4685	智能仪表	重庆川仪	XJ08H	COM
4686	智能仪表	重庆金特科技	Temp_modbus	COM
4687	智能仪表	重庆伟岸	TempControl	TCP-Server
4688	智能仪表	重庆伟岸测器	GPRS_Collector	TCP
4689	智能仪表	重庆伟岸测器	Wecan_HeatMeter	COM/TCP
4690	智能仪表	重庆伟岸测器	Wecan_TempCtrl	COM/TCP
4691	智能仪表	重庆伟岸测器	Wecan_Valve	COM/TCP
4692	智能仪表	重庆伟岸测器	Wecan_WAHH2	COM/TCP
4693	智能仪表	重庆易博数字	DD244_Screen	COM
4694	智能仪表	重庆渝宏	CQYH	串行
4695	智能仪表	重庆渝宏公司	YH 仪表	COM
4696	智能仪表	重庆宇虹	SEL2020	COM
4697	智能仪表	重庆宇虹	SEL2020	COM
4698	智能仪表	重庆智动	9ACS-NH	COM
4699	智能仪表	重庆中核	9ACS_NH	COM
4700	智能仪表	重庆中核	BATE_LM	COM
4701	智能仪表	重庆中核	simulate_led	COM
4702	智能仪表	重庆中核	simulate_led	COM
4703	智能仪表	周立功	PCI9820	COM
4704	智能仪表	周立功	PCI9840	COM
4705	智能仪表	珠海恒瑞	DPx_100E	COM
4706	智能仪表	珠海金电电源有限公司	GZDW33	COM
4707	智能仪表	珠海派诺	PMAC720	COM
4708	智能仪表	珠海派诺	PMAC9900N	串口
4709	智能仪表	珠海派诺	PMC9900	串口
4710	智能仪表	珠海睿成	WebServiceRC	HTTP
4711	智能仪表	珠海万利达	MRPR620Hb_DL103	COM
4712	智能仪表	珠海万利达	WLD2003	COM
4713	智能仪表	珠海长陆工控	UNIB00C	COM
4714	智能仪表	淄博三英	FL98GA	COM

Semiconductor Industry Solution
SECS/GEM Protocol Support for Semiconductor Industry

For SEMI standard protocol communication in the semiconductor industry, WellinTech provides solution for SECS/GEM enabled fab equipment data acquisition for EAP system.

- a. KingExGem interface library
- b. KingSecsGemTransmitter forwarding tool, and
- c. KingIOServerSecsGem acquisition tool



Support CNC Machine Tools

Supports communication with Fanuc, Mitsubishi, Mazak and several other machine tools . **Support MDC (Manufacturing Data Collection System) System & DNC (Distributed Numerical Control System) System** access

MDC					DNC
Machine Tool Information	Basic Data	Processing Information	Program Information	Axis Information	Program Operation
Link status Serial Number Version number M/T MODE Maximum number of axes Number of valid axes	Spindle speed Spindle override Spindle load Feed rate, override Servo load Cumulative cutting time	Operating mode Emergency stop state Processing state Axis movement status Number of main Workpieces processed Number of sub Workpieces processed	Machining program number main program number Comment line execution line number execute code Work tool knives number	Relative coordinates absolute coordinates Machine tool Coordinates Shaft current Shaft temperature Follow-up error	Program upload Program download Program real-time display Program query editing Program comparison check Program storage management

Support OPC Interface

OPC
DA

OPC Real-time Data Access

Automatic enumeration of server variables, connection status self-diagnosis and self-recovery.

Synchronous/asynchronous way to read and write back variables, polling/subscription way collection, etc.

OPC AE

Alarm Event Access Specification

Provides alarm notification functions, such as: emergency situations, operator actions, information messages, etc.

OPC
UA

OPC Unified Architecture

- Support anonymous, user name password, certificate multiple connection methods
- Support None, Basic128Rsa15, Basic256, Basic256Sha256, etc.



Plentiful Open-Interface

01

Multiple Database Storage

Support MySQL、SQL Server、ORACLE、
Redis

02

Multilingual API Interface

Support access through C++, C#
interface

03

IT Interface Forwarding

Support MQTT、REST protocol
forwarding

04

Proprietary Protocol forwarding/Conversion

Support Modbus、IEC101、IEC104、
HJ/T212、SECS/GEM,etc

05

Standard OPC Server Interface

Can connect to any OPC client

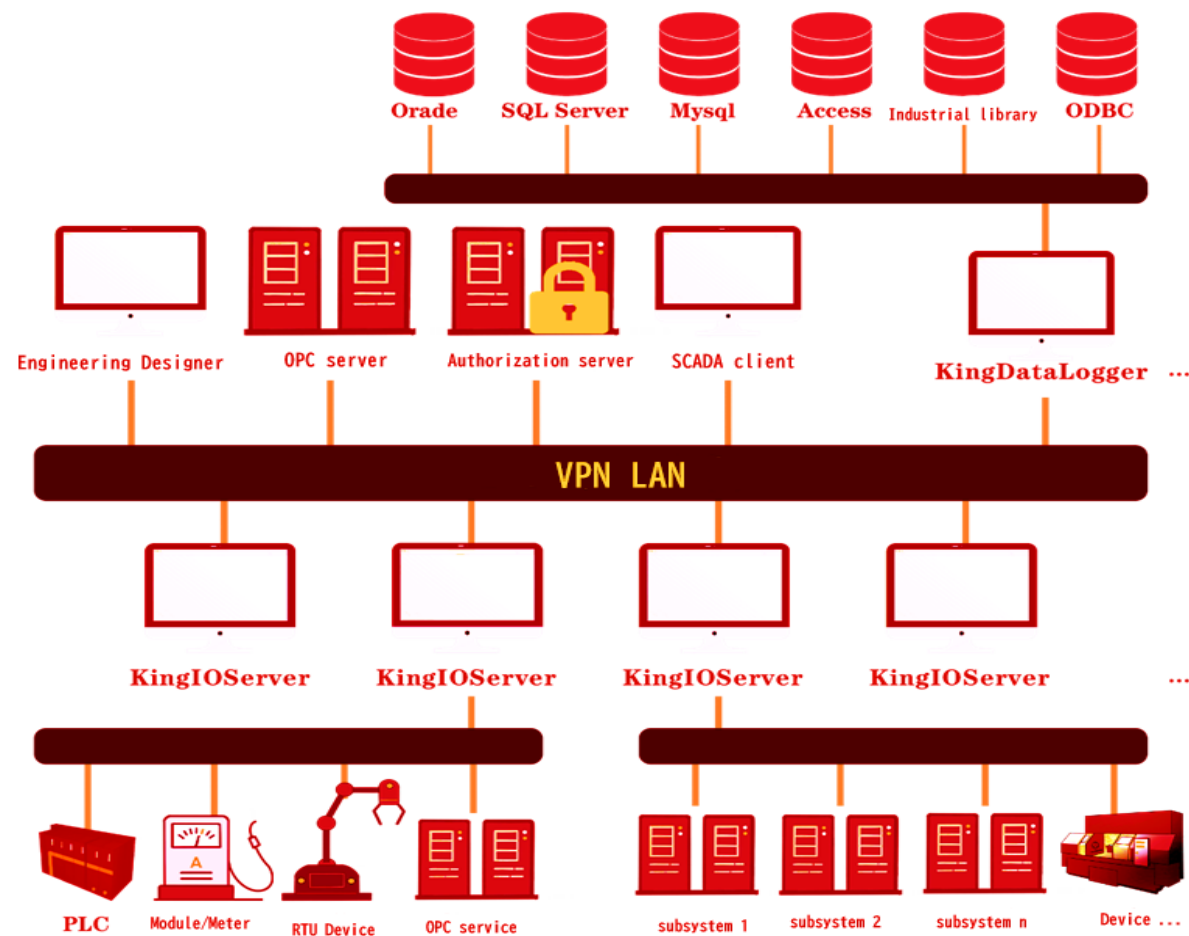
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Custom Interface Development

Support for the development of custom
data formats

Distributed Deployment- High Availability

- ✓ KingIO Server can be deployed to different computer nodes to reduce load and improve system performance.
- ✓ Even if a single node goes down, it does not affect the normal operation of other services and improves availability.
- ✓ Easily meet the scale and performance requirements of large surveillance systems.



Multiple Redundancy Schemes

IOServer Redundancy

The master-slave IOServer is connected to the network through TCP\IP. When the main IOServer fails, the slave IOServer can be collected in time.

NIC Redundancy

Two network cards are used on the machine where the IOServer is located, which are redundant with each other. The main network card is used by default. When the connection is disconnected, the backup network card is used to continue data transmission to ensure the stability of the communication link.

Equipment Redundancy

Users can use two sets of identical devices to collect at the same time. When the IOServer detects that the communication with the master device fails, it will automatically switch to the slave device for collection to ensure complete storage of device data.

User Rights Management

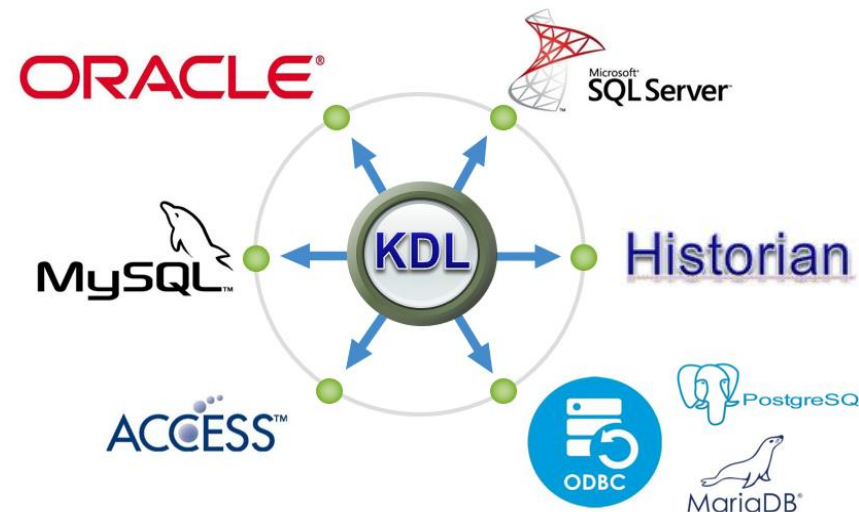
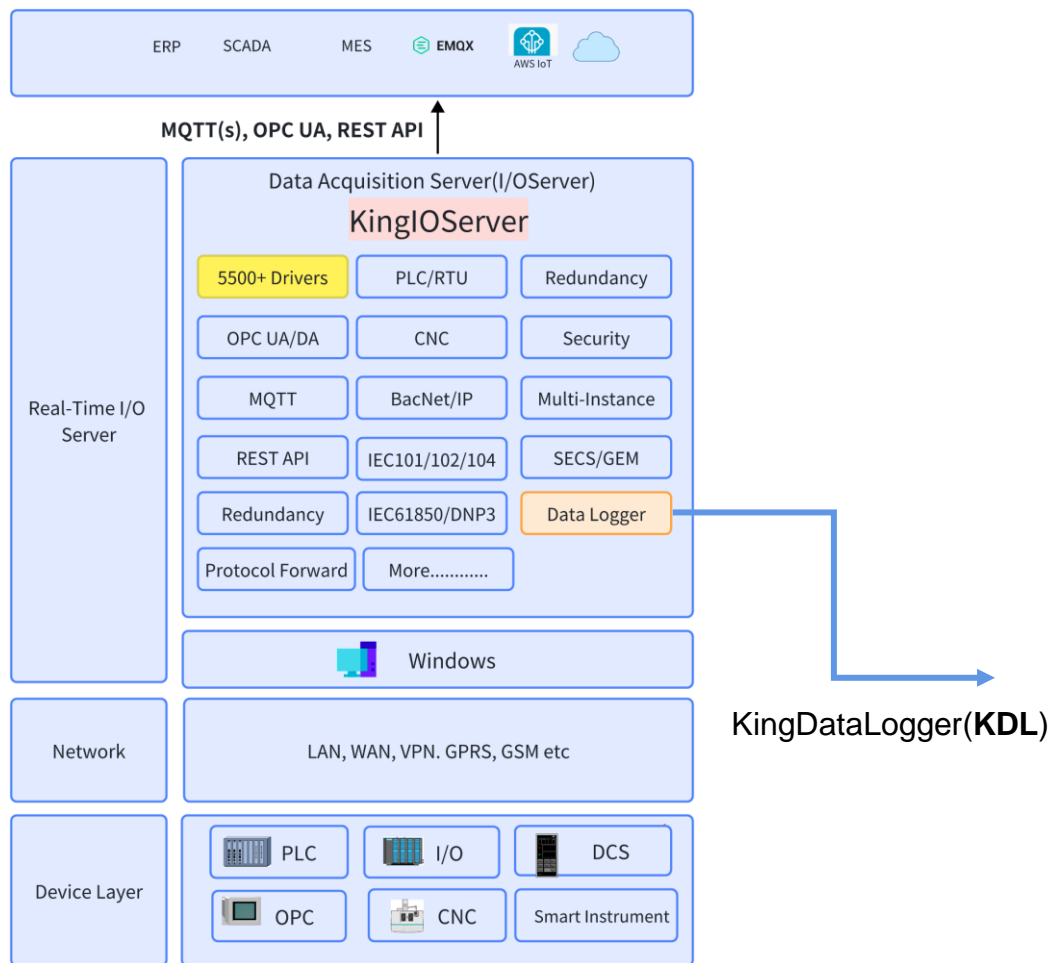
- ✓ KingIOServer has a complete user management system
- ✓ Support multiple access rights for users/guests, ordinary users and administrators
- ✓ Users with different permissions can be managed separately



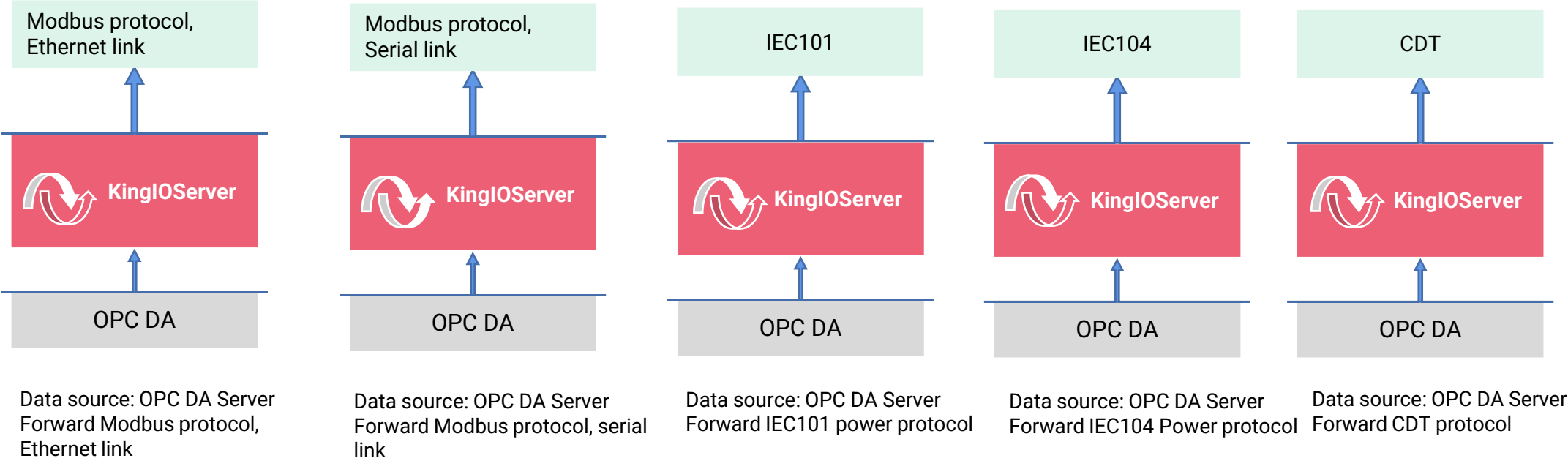
Bulk Industrial Data Storage

KingDataLogger(KDL) is a component of KingIO Server which stores collected data to relational databases.

- Supports a variety of databases, including mainstream and non-relational databases.
- Support ADO, ODBC storage.
- Supports off-line caching and continuity for data integrity.



Data/Protocol Forwarding/Conversion



Driver Development System

Stable Acquisition Performance

The drive products have passed the practical test of a large number of industrial control scenarios, which can ensure the stable operation of the site.

Complete R&D Process

Adopt template-based development and automated testing to ensure that drivers follow strict design, development, and testing specifications



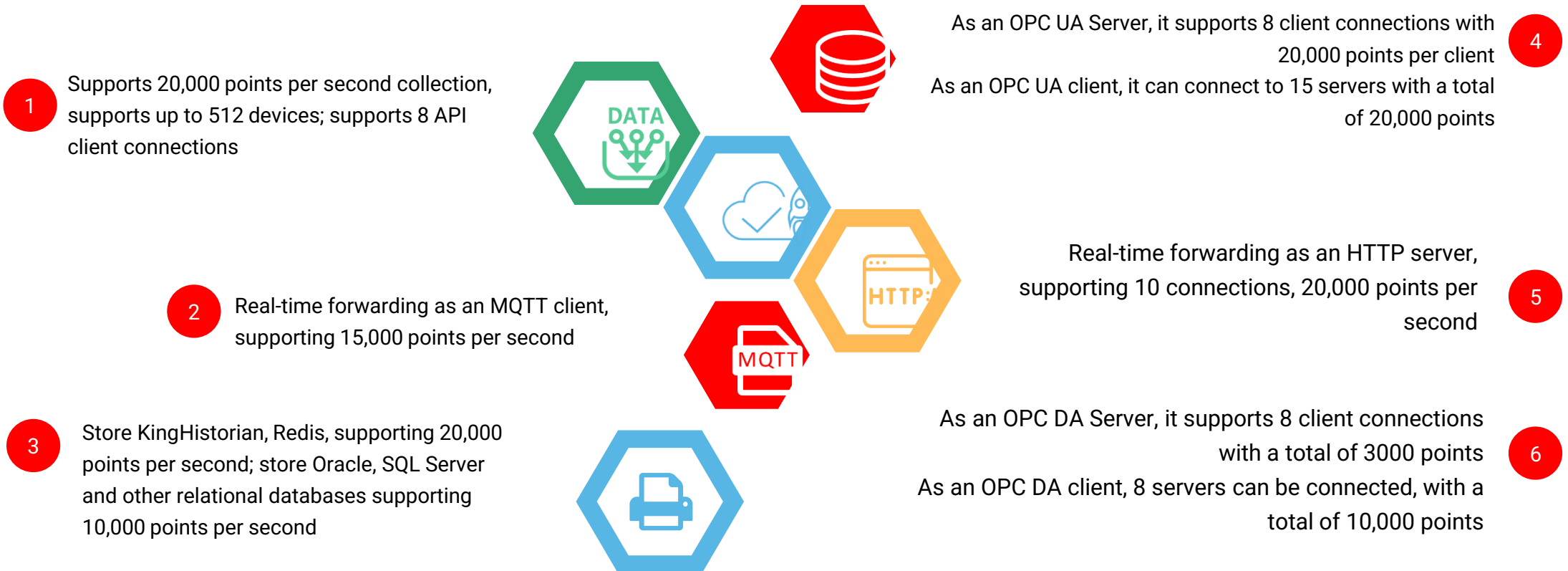
Support Users to Develop Independently

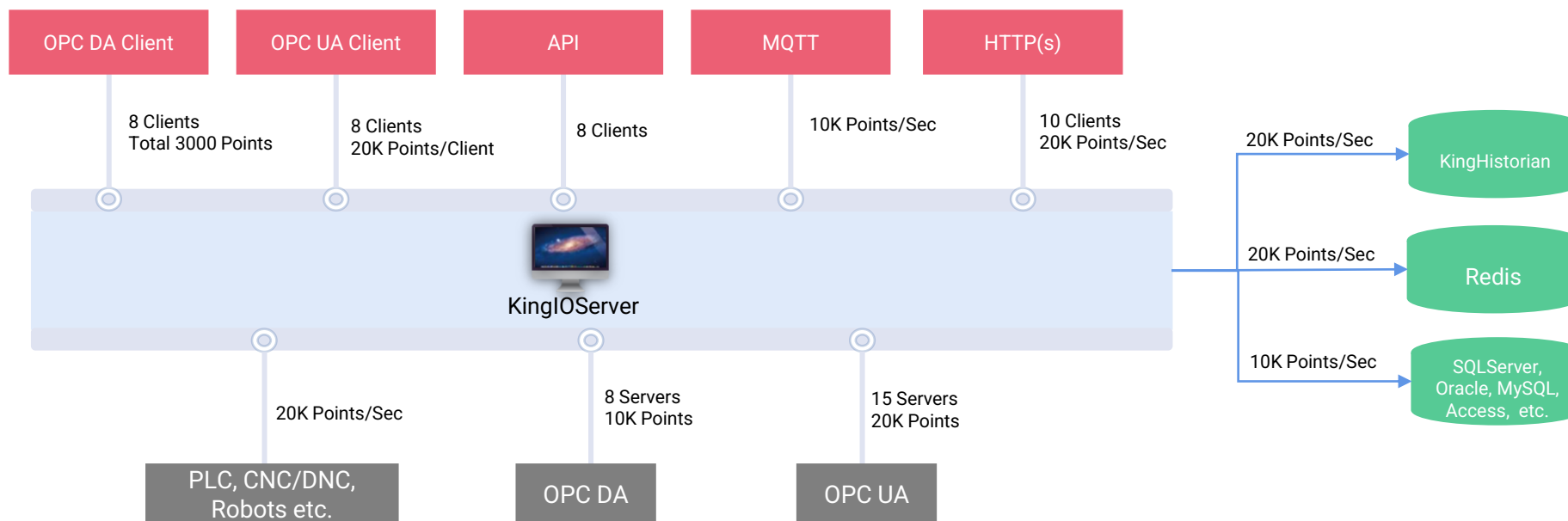
Provide template-driven development
KingDriverDeveloper, users can complete the driver development work independently .

Provide Customized Services

WellinTech development team can provide customized driver interface development services according to customers' needs

Product Performance





The performance parameters here are related to the computer configuration and the number of functions used at the same time. The performance parameters are tested under the mainstream configuration. If the actual computer configuration, network, and the number of functions used at the same time are different, the performance parameters will fluctuate.

This performance parameter is for a single KingIOServer instance. If a large number of points is required on site, multiple instances can be used.

- ✓ Support the establishment of 256 links;
- ✓ Each link supports 256 devices;
- ✓ The total number of devices shall not exceed 1500;
- ✓ The total number of variables does not exceed 20,000 points;
- ✓ The OPCDA client supports the collection of 10,000 point variables;
- ✓ The OPCDA server supports 8 clients to access at the same time, and the total number of points is 3000 points (the total number of points is the sum of the points of each client);

- ✓ The OPCUA client supports the collection of 20,000 variables;
- ✓ The OPCUA server supports simultaneous access by 8 clients;
- ✓ Support 15,000 points/second through MQTT forwarding;
- ✓ Support 20,000 points/second through Restful forwarding;
- ✓ Restful Server supports 10 connections;
- ✓ Storage KingHistorian(KH) supports 20,000 points/second;
- ✓ Storage Redis supports 20,000 points/second;
- ✓ The API supports 8 client connections (KS and KDL also occupy one connection);

06

KingIOServer License

KingIOServer I/Os(Windows)	Code	Description
500 I/Os	KIO-RT-101	KingIOServer , Data Acquisition、OPC service and API Interface。A single machine can run multiple 20,000-tags projects simultaneously。Support Siemens, Schneider, Rockwell and other mainstream PLCs, instruments, inverters, RTUs, etc.; support common protocols such as power 104; support more than 5,000 drivers, data access ; support OPC DA/UA; support MQTT,REST etc.; provide API interface; support multi-instance operation. More than 20000 I/Os, customers are recommended to use 64bit KingIOServer if single server
1000 I/Os	KIO-RT-102	
1500 I/Os	KIO-RT-103	
3000 I/Os	KIO-RT-104	
5000 I/Os	KIO-RT-105	
10000 I/Os	KIO-RT-106	
20000 I/Os	KIO-RT-107	
30000 I/Os	KIO-RT-108	
60000 I/Os	KIO-RT-109	
100000 I/Os	KIO-RT-109	
Machine CNC Machines	Code	Description
KingIOServer-MDC	KIO-CNC-101	Supports FANUC, Brother, and Mitsubishi real-time data collection, including 100 points/set.
KingIOServer-DNC	KIO-CNC-102	Support FANUC. Support drivers upload and download management.
Function Module	Code	Description
KingDataLogger(KDL)	KIO-DL-103	Data Forwarding: PostgreSQL、KingHistorian、SQLServer、MySQL、Oracle、Access、ODBC
KingTransModbusTCP Forwarding Tool	KIO-KT-104	Data source: OPC DA Server, forwarding Modbus protocol, Ethernet link
KingTransModbus Forwarding Tool	KIO-KT-105	Data source: OPC DA Server, forwarding Modbus protocol, serial link
KingTransIEC101 Forwarding Tool	KIO-KT-106	Data source: OPC DA Server, forwarding IEC101 power protocol
KingTransIEC104 Forwarding Tool	KIO-KT-107	Data source: OPC DA Server, forwarding IEC104 power protocol
KingTransCDT Forwarding Tool	KIO-KT-108	Data source: OPC DA Server, forwarding CDT protocol
OPC UA Server	KIO-OPC-109	Provide data to third parties through OPC UA interface, and use it with KingIOServer

KingIOServer Linux	Code
KingIOServer Linux , 500 Points	KIOL-RT-101
KingIOServer Linux, 1000 Points	KIOL-RT-102
KingIOServer Linux, 1500 Points	KIOL-RT-103
KingIOServer Linux, 3000 Points	KIOL-RT-104
KingIOServer Linux, 5000 Points	KIOL-RT-105
KingIOServer Linux, 10000 Points	KIOL-RT-106
KingIOServer Linux, 20000 Points	KIOL-RT-107
KingIOServer Linux, 30000 Points	KIOL-RT-108
KingIOServer Linux, 60000 Points	KIOL-RT-109
KingIOServer Linux, 100000 Points	KIOL-RT-109

1. USB Dongle
2. Soft License

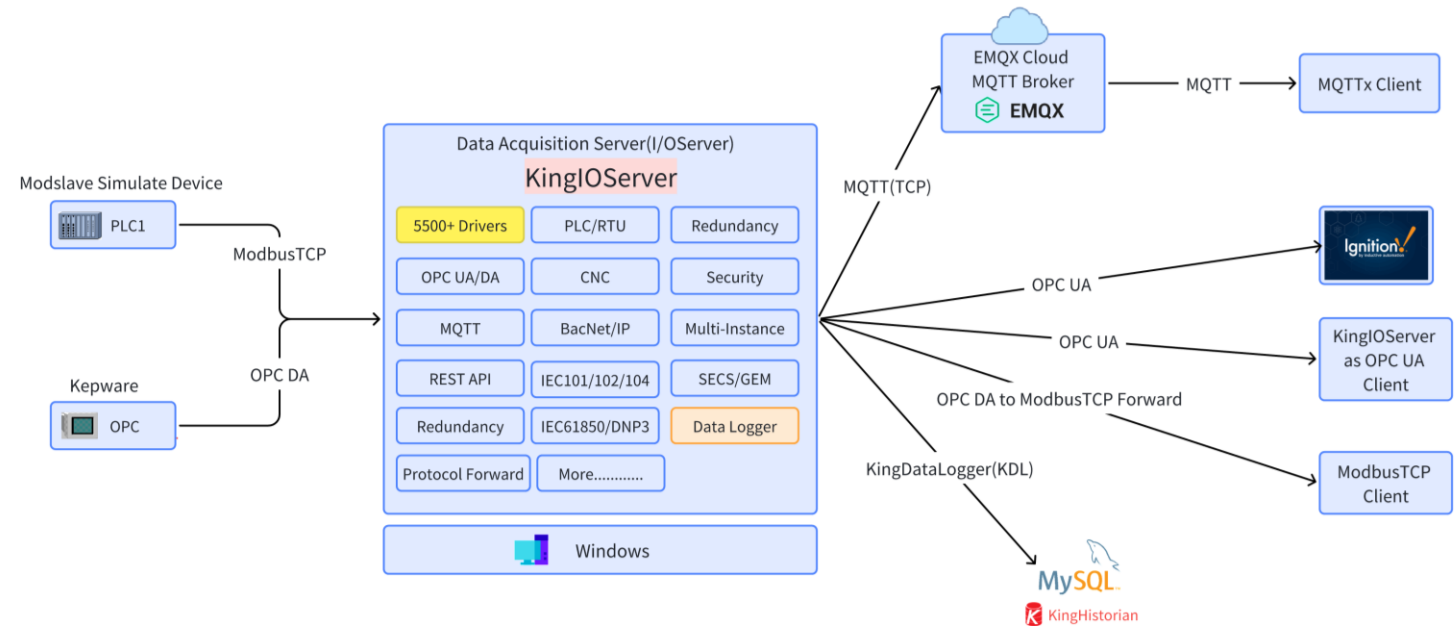
07

Hands-On

Hands-On Demo

We will implement this in local PC using KingIOServer:

1. ModbusTCP and OPC DA Communication
2. KingIOServer MQTT Forward to EMQX
3. KingIOServer OPC UA + Ignition Communication
4. KingIOServer projects as OPC UA Server and UA Client
5. Real-Time data logging into MySQL and KingHistorian





KingIOServer

**A Data Connectivity Platform for
Intelligent Manufacturing**



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