

Introduction of the Department of Ant Trust-Native Technology (TNT)



WE ARE ANT GROUP'S INFRASTRUCTURE TEAM. THE YOUNG AND ENERGETIC TEAM HAS MORE THAN 230 TALENTS FROM VARIOUS BACKGROUND. WE ENJOY DOING RESEARCH AND DEVELOPMENT ON THE CUTTING-EDGE INFRASTRUCTURE TECHNOLOGY DIRECTIONS, INCLUDING NETWORK & CONTAINER ORCHESTRATION, TRUSTED PLATFORM, CLOUD NATIVE ENGINEERING SYSTEM, TRUSTED APPLICATION SERVICE, APPLETS RUNTIME, INFRA DATA SCIENCE, PAAS CORE, TRUSTED HARDWARE AND KERNEL, SECURE COMPUTING AND KATA CONTAINER & FILESYSTEM. IN ANALOGY TO CLOUD-NATIVE, WE CALL OURSELVES TRUST-NATIVE FOR INFRASTRUCTURE SYSTEM.

What is Trust-Native?

Trust-Native is a methodology to integrate and optimize infrastructure technologies and components, and construct trusted production environment,

by which developers can build secure, reliable, efficient and scalable technical infrastructure to meet the highest standard of financial services.

We are striving to empower infrastructure applications to have "5S" properties.



Scalability Service hyper-scale 11.11 Global Shopping Festival transaction surges.

Stability Multi-active architecture spanning 5 availability zones in 3 regions for world 's leading disaster recovery capability.

Speed Responding Ant Forest daily traffic spike in minutes.

Simplicity One-stop financial cloud-native application R&D experience powered by SOFAStack.

Security System level defense-in-depth enabled by defaulting to secure containers.





The Influence of TNT Rewards of SOFA and MOSN

2019.4.1 OSChina GVP : SOFABoot、SOFARPC、SOFABolt

2019.5.29 sofa-rpc sofa-tracer sofa-mosn joined CNCF Landscape

2019.7.3 SOFAStack (Scalable Open Financial Architecture Stack) won OSCAR Peak Open Source Tech Renovation Award (Independent R&D) in CAICT

2019.11.26 OSChina GVP : SOFATracer

2019.12.14 Gitee 2019 GVP

2019.12.16 the Second Prize of COSCL China Outstanding Open Source Project

2019.12.26 SegmentFault 2019 China Tech Brand Influence Enterprise - SOFAStack

2020.11.25 SOFAStack won Outstanding Gitee Org

2020.12.22 SegmentFault 2020 China Tech Brand Influrence Enterprise - SOFAStack

2020.12.30 MOSN COSCL China Outstanding Open Source Project

2021.1.22 Service Mesh won SegmentFault 2020 China Tech Brand Influrence Enterprise

2021.5.26 SOFAStack community won 2021 Cloud-Native Tech Renovation Solution/Product Prize

2021.9.17 MOSN community joined Trusted Open Source Community Union

2021.9.17 SOFAStack service mesh got Outstanding-Level in Trusted Cloud Service Mesh Evaluation



Publications from Trusted Hardware and Kernel Team

2020

• ASPLOS

Catalyzer: Sub-millisecond Startup for Serverless Computing with Initialization-less Booting. ASPLOS2020: 467-481 Dong Du, Tianyi Yu, Yubin Xia, Binyu Zang, Guanglu Yan, Chenggang Qin, Qixuan Wu, Haibo Chen

• SoCC

Characterizing serverless platforms with serverlessbench. SoCC2020: 30-44 Tianvi Yu Qingyuan Liu Dong Du Yubin Xia Binyu Zang Zigian Lu

Tianyi Yu, Qingyuan Liu, Dong Du, Yubin Xia, Binyu Zang, Ziqian Lu, Pingchao Yang, Chenggang Qin, Haibo Chen

2021

• ATC

TCP-Fuzz: Detecting Memory and Semantic Bugs in TCP Stacks with

Fuzzing. USENIX Annual Technical Conference2021: 489-502 Yong-Hao Zou, Jia-Ju Bai, Jielong Zhou, Jianfeng Tan, Chenggang Qin, Shi-Min Hu

• CCS

Demons in the Shared Kernel: Abstract Resource Attacks Against OSlevel Virtualization. CCS

Publications from Secure Computing Team

Occlum:

Secure and Efficient Multitasking Inside a Single Enclave of Intel SGX, ASPLOS2020:955-970 Youren Shen, Hongling Tian, Yu Chen, Kang Chen, Runji Wang, Yi Xu, Yubin Xia, Shoumeng Yan



Introduction of Our Open **Source Projects**

SOFAStack[™] (Scalable Open Financial Architecture Stack) is a set of middleware for rapidly building financial-grade cloud-native architectures and best practices refined in financial scenarios, and has the following features. Open: the technology stack is fully open source, community-neutral, community-compatible, open-source ecology-compatible, pluggable components, SOFAStack components and other open-source components can be integrated or replaced.

Financial grade: contains the components needed to build financial grade cloud-native architecture, allowing users to focus more on business development, meeting the current and future needs of user scenarios, having experienced the refinement of large-scale scenarios, especially the demanding financial scenarios.

Cloud-native: based on SOFAStack can quickly build cloud-native microservices system, quickly develop more reliable and scalable, more easily maintained cloud-native applications.

Homepage: https://www.sofastack.tech/

MOSN (Modular Open Smart Network) is a cloud-native network proxy platform developed mainly in Golang language, open-sourced by Ant Group and validated by hundreds of thousands of containers at production level in the Double 11 promotion. MOSN provides multi-protocol, modular, intelligent and secure proxy capabilities for services, incorporating a large number of cloud-native common components, and also integrating Envoy as a network library, with high performance and easy to scale. features. MOSN can be integrated with Istio to build Service Mesh, or used as a standalone Layer 4 or 7 load balancer, API Gateway, cloud-native Ingress, etc.

Homepage: https://mosn.io/





Layotto is a cloud-native product developed with MOSN as the core and Runtime theory. It is a practice that combines the two ideas of Service Mesh and Runtime, aiming to provide a set of distributed capability primitives for applications with complete functionality, high applicability and rich governance, so that developers can no longer be bound by the detailed differences between various infrastructures and cloud vendors, and focus on capability-oriented programming to improve development efficiency. The Layotto project is also exploring the Serverless space.

Homepage: https://github.com/mosn/layotto

Kata Containers is a strongly isolated, OCI-compliant container runtime project based on virtual machine technology that runs perfectly on Kubernetes clusters. Kata Containers provide additional protection between among containers or between containers and hosts by providing a complete, isolated OS execution environment for container applications, preventing applications from accessing host resource directly.

Kata Containers has the following features.

Security: Running in a separate kernel, application and user kernel flaws do not affect host security.

Isolation: In addition to security isolation, it can also provide performance isolation and fault isolation, making the host more secure and stable. Compatibility: Compatible with industry standards such as OCI/CRI High performance: as secure as a virtual machine and as fast as a container.

Homepage: https://katacontainers.io/

We are hiring!

We always appreciate infrastructure talents from all over the world. We are hiring interns and full-time employees. We have offices in Hangzhou(Headquarter), Shanghai, Beijing, Chengdu, Guangzhou, Nanjing, and Chongqing, and San Francisco.

Contacts:

HR : cara.cx@antgroup.com Tech Lead : boliu.xu@antgroup.com



Wechat office account