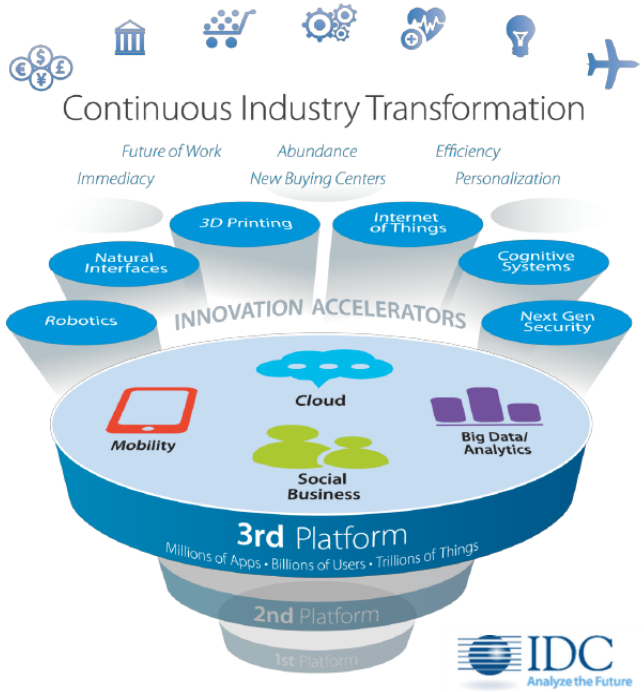


Good, Better, Best,
Mobile user’s experience

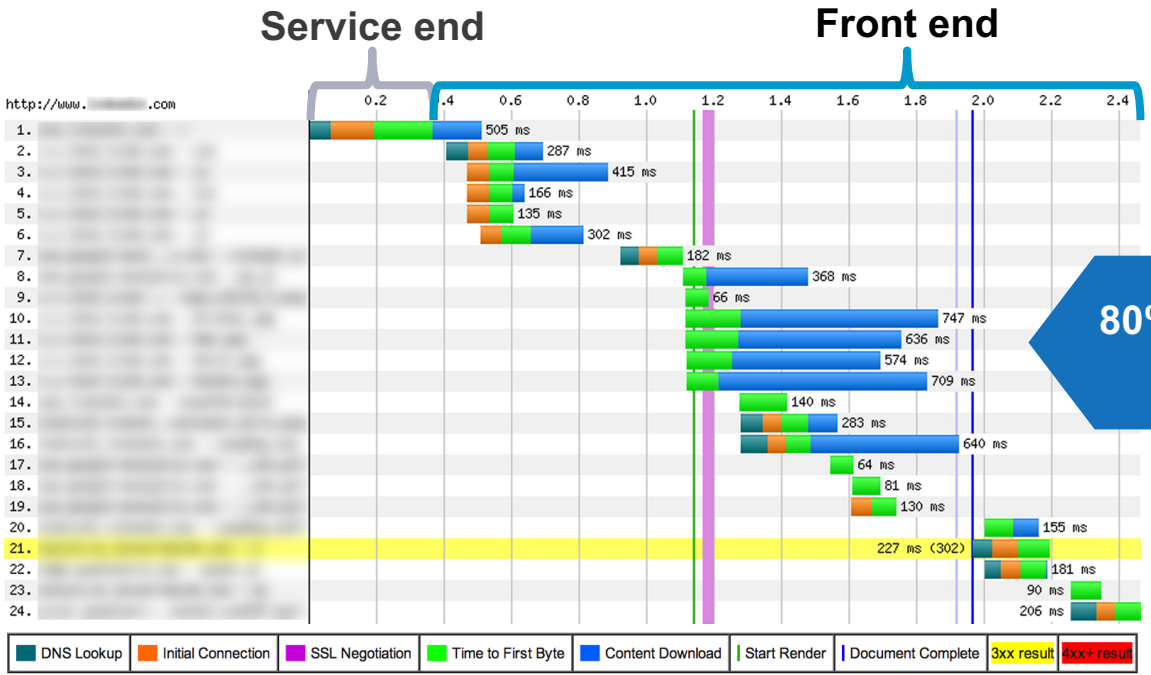
Fred Wu 吴静涛， Tech VP of Tingyun
(The best APM SaaS in China)

Generation Y / Z , 90G plus is the major contributor of E-commerce





99%+ invest in DC， can not fix the Mobile user performance issue



80%~90% time were spent on front end

Improve the Mobile user's experience, from Good, Better to Best,

Gartner defined NG-APM

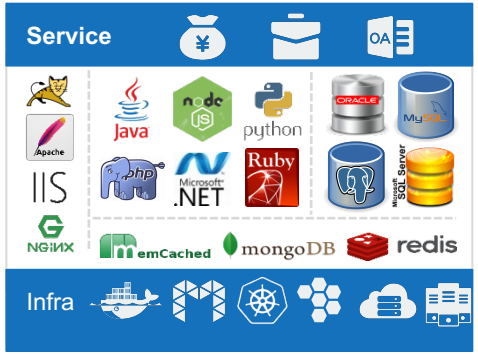
Digital experience monitoring (DEM) — Digital experience monitoring is an availability and performance monitoring discipline that supports the optimization of the operational experience and behavior of a digital agent, human or machine, as it interacts with enterprise applications and services. For the purposes of this evaluation, it includes real-user monitoring (RUM) and synthetic transaction monitoring (STM) for both web- and mobile-based end users.

Application discovery, tracing and diagnostics (ADTD) — Application discovery, tracing and diagnostics is a set of processes designed to understand the relationships between application servers, to map transactions across these nodes, and to enable the deep inspection of methods and other host resources. It combines three formerly separate dimensions (application topology discovery and visualization, user-de ned transaction pro ling, and application component deep-dive) under a common name. All three dimensions are primarily focused on problem remediation and are interlinked.

Application analytics (AA) — Application analytics enables the automated detection of the source (or root cause) of performance anomalies for HTTP/S transactions supported by Java and .NET application servers through machine learning, statistical inference and/or other methods.

How to find the performance issue and fix it quickly





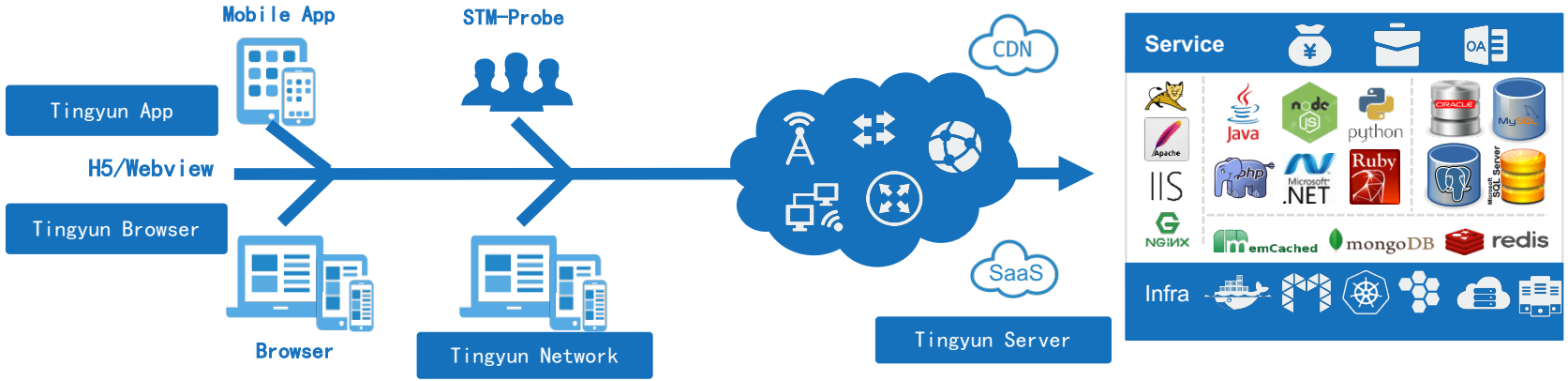
EUM | STM | Network | Application topology | Code review

- Bytecode injection
- end-to-end latency
- execution correctness
- quality appear
- application availability

- synthetic transactions
- Last mile point
- IDC point
- Load testing

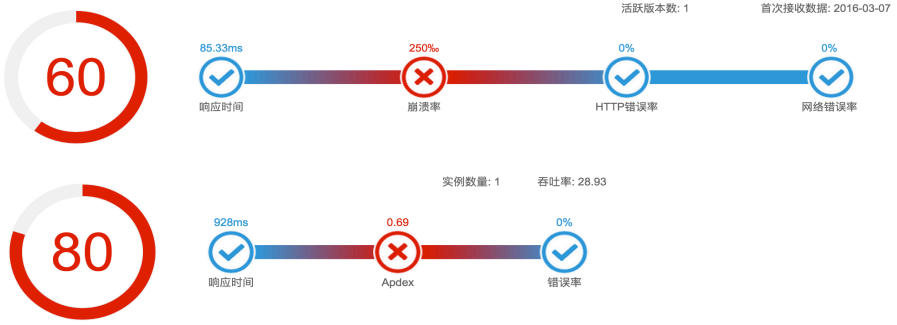
- components discovery
- user-grouped events
- transaction
- fine-grained monitoring

5 Step to improve the Mobile User‘s Experience

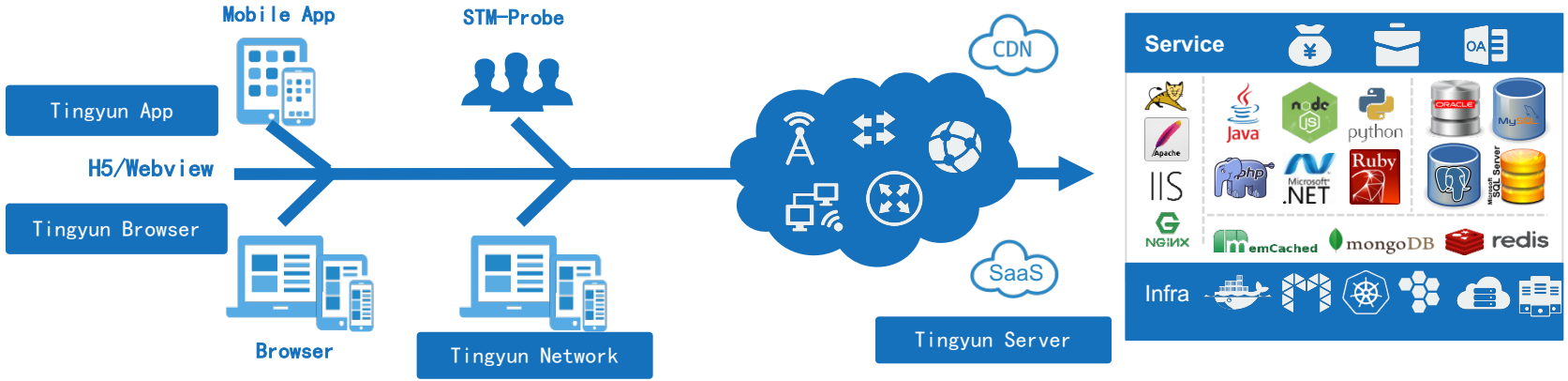


1.Scoring → 2.RUM/STM → 3.Network → 4.Application topology → 5.Code review



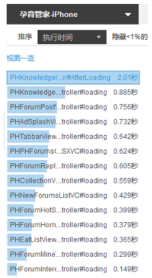


5 Step to improve the Mobile User‘s Experience



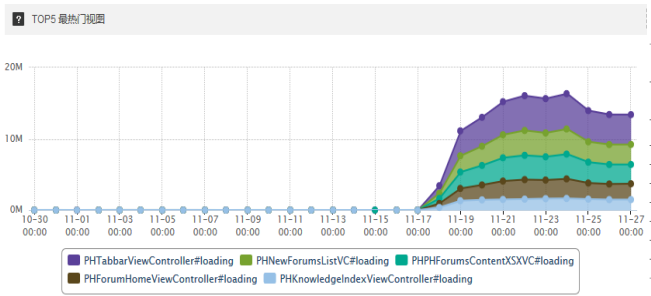
1.Scoring | **2.RUM/STM** | 3.Network | 4.Application topology | 5.Code review

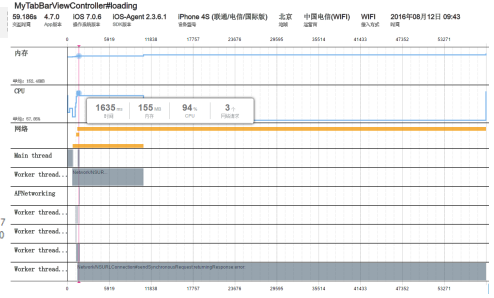
交互性能分析-IOS



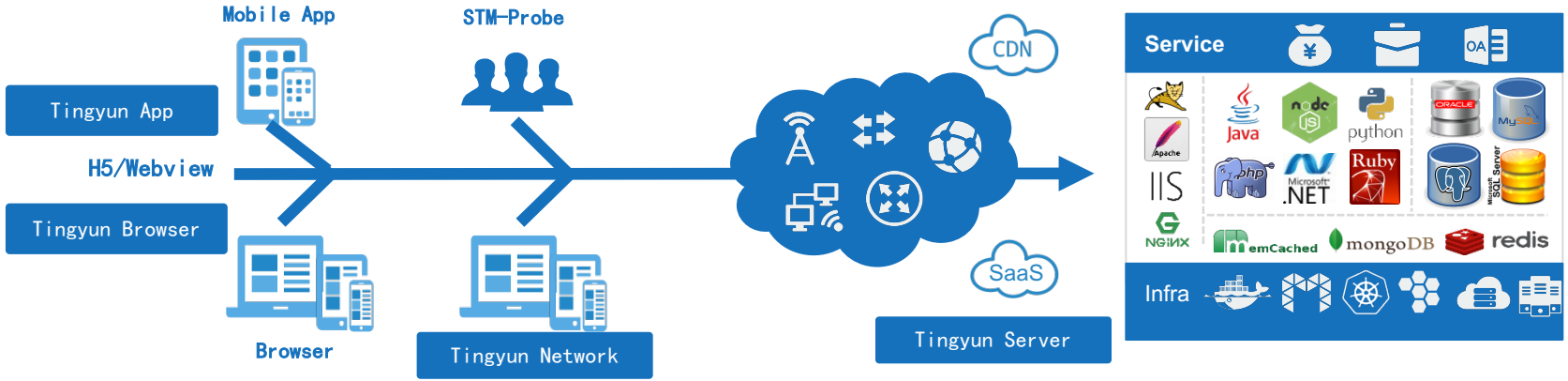
页面加载分析-IOS



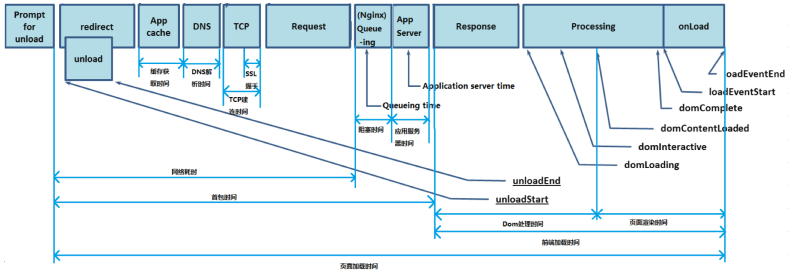


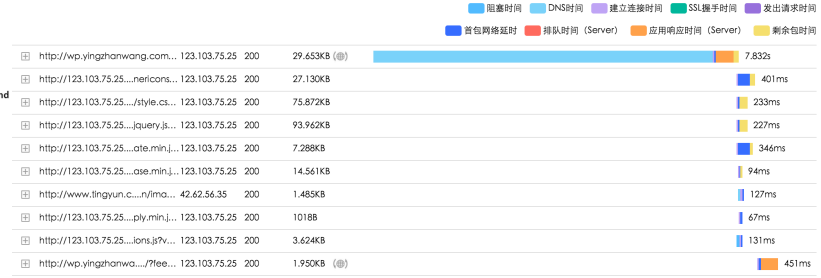


5 Step to improve the Mobile User‘s Experience

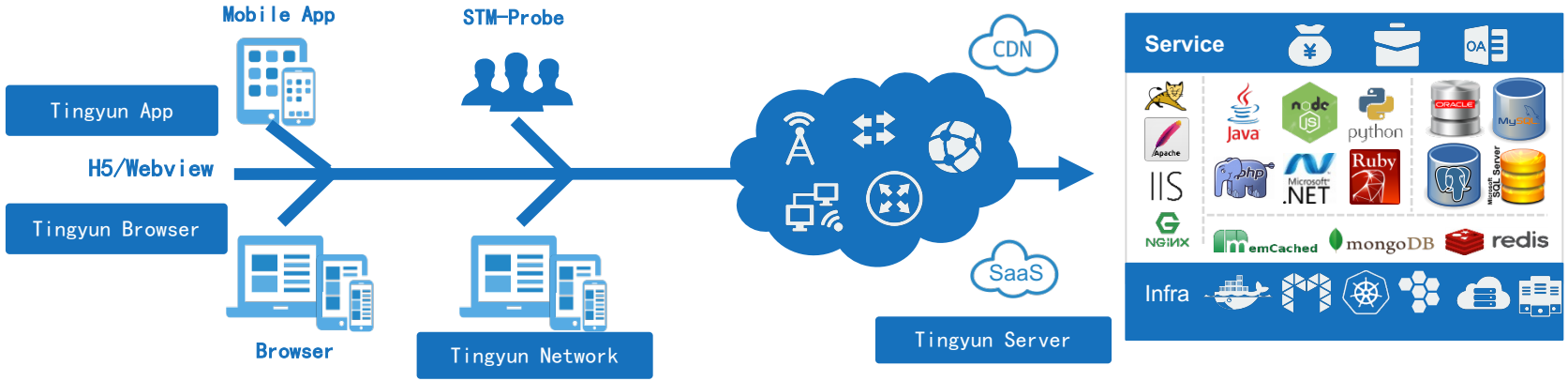


1.Scoring → 2.RUM/STM → **3.Network** → 4.Application topology → 5.Code review

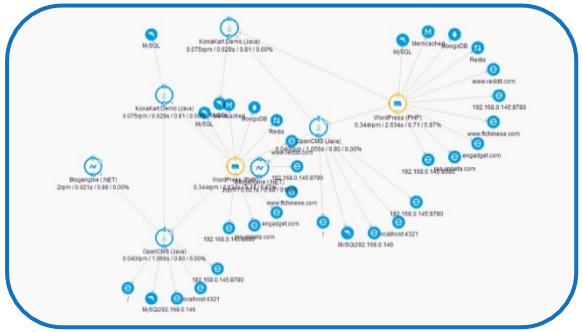


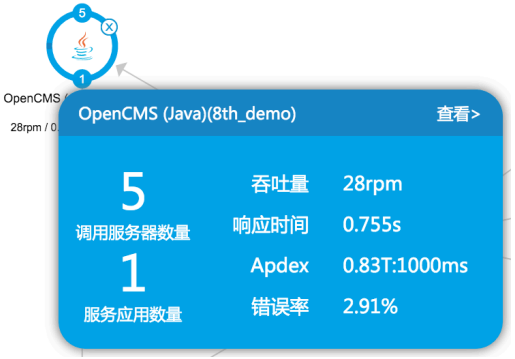


5 Step to improve the Mobile User‘s Experience

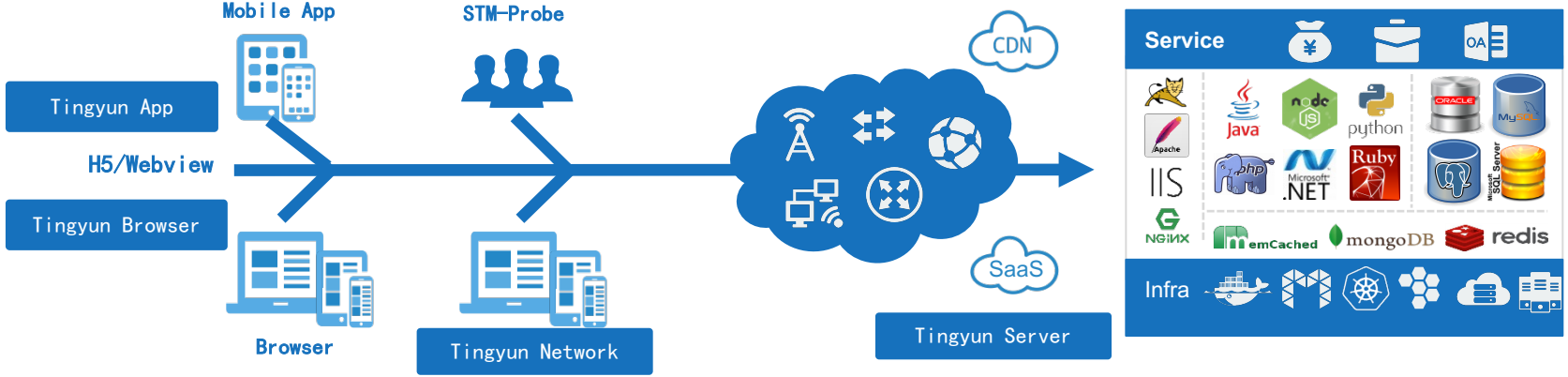


1.Scoring | 2.RUM/STM | 3.Network | **4.Application topology** | 5.Code review

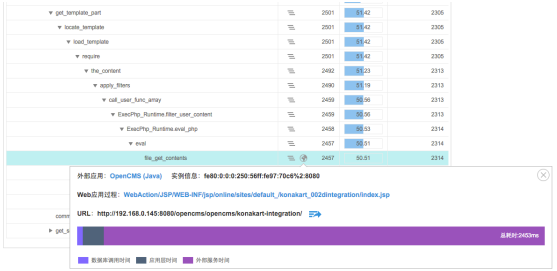


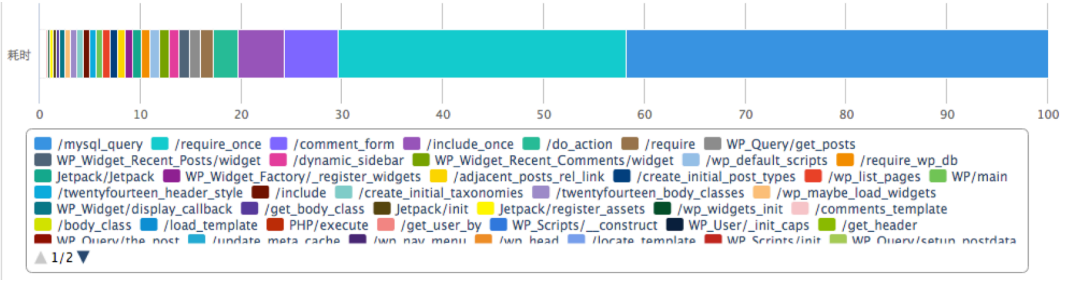


5 Step to improve the Mobile User‘s Experience



1.Scoring → 2.RUM/STM → 3.Network → 4.Application topology → 5.Code review

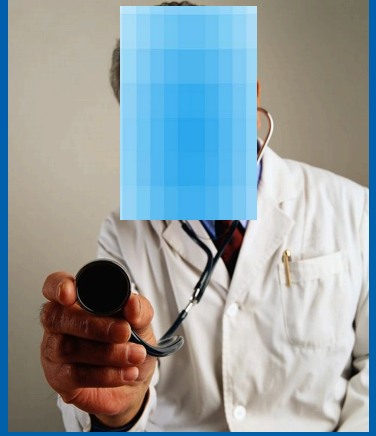




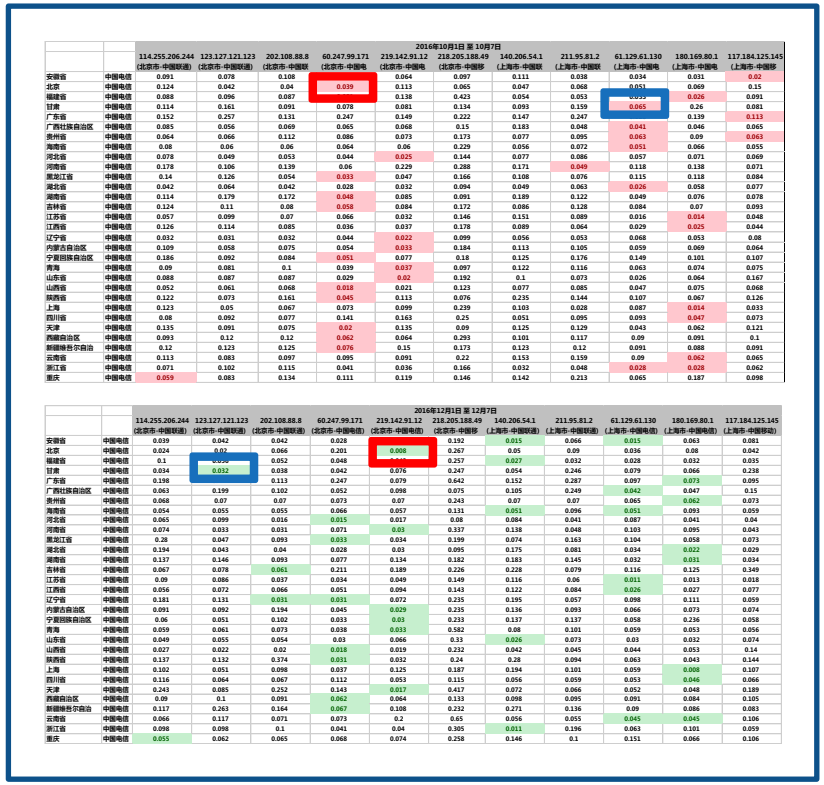
5 Step to improve the Mobile User‘s Experience

1. Scoring
2. RUM/STM
3. Network
4. Application topology
5. Code review





Automation: from Viewer to Doer



2016年10月1日 至 10月7日

		114.255.206.244 (北京市-中国联通)	123.127.121.123 (北京市-中国联通)	202.108.88.8 (北京市-中国联通)	60.247.99.171 (北京市-中国电信)	219.142.91.12 (北京市-中国电信)	218.205.188.49 (北京市-中国移动)	140.206.54.1 (上海市-中国联通)	211.95.81.2 (上海市-中国联通)	61.129.61.130 (上海市-中国电信)	180.169.80.1 (上海市-中国电信)	117.184.125.145 (上海市-中国移动)
安徽省	中国电信	0.091	0.078	0.108		0.064	0.097	0.111	0.038	0.034	0.031	0.02
北京	中国电信	0.124	0.042	0.04	0.039	0.113	0.065	0.047	0.068	0.051	0.069	0.15
福建省	中国电信	0.088	0.096	0.087		0.138	0.423	0.054	0.053	0.022	0.026	0.091
甘肃	中国电信	0.114	0.161	0.091	0.078	0.081	0.134	0.093	0.159	0.065	0.26	0.081
广东省	中国电信	0.152	0.257	0.131	0.247	0.149	0.222	0.147	0.247		0.139	0.113
广西壮族自治区	中国电信	0.085	0.056	0.069	0.065	0.068	0.15	0.183	0.048	0.041	0.046	0.065
贵州省	中国电信	0.064	0.066	0.112	0.086	0.073	0.173	0.077	0.095	0.063	0.09	0.063
海南省	中国电信	0.08	0.06	0.06	0.064	0.06	0.229	0.056	0.072	0.051	0.066	0.055
河北省	中国电信	0.078	0.049	0.053	0.044	0.025	0.144	0.077	0.086	0.057	0.071	0.069
河南省	中国电信	0.178	0.106	0.139	0.06	0.229	0.288	0.171	0.049	0.118	0.138	0.071
黑龙江省	中国电信	0.14	0.126	0.054	0.033	0.047	0.166	0.108	0.076	0.115	0.118	0.084
湖北省	中国电信	0.042	0.064	0.042	0.028	0.032	0.094	0.049	0.063	0.026	0.058	0.077
湖南省	中国电信	0.114	0.179	0.172	0.048	0.085	0.091	0.189	0.122	0.049	0.076	0.078
吉林省	中国电信	0.124	0.11	0.08	0.058	0.084	0.172	0.086	0.128	0.084	0.07	0.093
江苏省	中国电信	0.057	0.099	0.07	0.066	0.032	0.146	0.151	0.089	0.016	0.014	0.048
江西省	中国电信	0.126	0.114	0.085	0.036	0.037	0.178	0.089	0.064	0.029	0.025	0.044
辽宁省	中国电信	0.032	0.031	0.032	0.044	0.022	0.099	0.056	0.053	0.068	0.053	0.08
内蒙古自治区	中国电信	0.109	0.058	0.075	0.054	0.033	0.184	0.113	0.105	0.059	0.069	0.064
宁夏回族自治区	中国电信	0.186	0.092	0.084	0.051	0.077	0.18	0.125	0.176	0.149	0.101	0.107
青海	中国电信	0.09	0.081	0.1	0.039	0.037	0.097	0.122	0.116	0.063	0.074	0.075
山东省	中国电信	0.088	0.087	0.087	0.029	0.02	0.192	0.1	0.073	0.026	0.064	0.167
山西省	中国电信	0.052	0.061	0.068	0.018	0.021	0.123	0.077	0.085	0.047	0.075	0.068
陕西省	中国电信	0.122	0.073	0.161	0.045	0.113	0.076	0.235	0.144	0.107	0.067	0.126
上海	中国电信	0.123	0.05	0.067	0.073	0.099	0.239	0.103	0.028	0.087	0.014	0.033
四川省	中国电信	0.08	0.092	0.077	0.141	0.163	0.25	0.051	0.095	0.093	0.047	0.073
天津	中国电信	0.135	0.091	0.075	0.02	0.135	0.09	0.125	0.129	0.043	0.062	0.121
西藏自治区	中国电信	0.093	0.12	0.12	0.062	0.064	0.293	0.101	0.117	0.09	0.091	0.1
新疆维吾尔自治	中国电信	0.12	0.123	0.125	0.076	0.15	0.173	0.123	0.12	0.091	0.088	0.091
云南省	中国电信	0.113	0.083	0.097	0.095	0.091	0.22	0.153	0.159	0.09	0.062	0.065
浙江省	中国电信	0.071	0.102	0.115	0.041	0.036	0.166	0.032	0.048	0.028	0.028	0.062
重庆	中国电信	0.059	0.083	0.134	0.111	0.119	0.146	0.142	0.213	0.065	0.187	0.098

2016年12月1日 至 12月7日

		114.255.206.244 (北京市-中国联通)	123.127.121.123 (北京市-中国联通)	202.108.88.8 (北京市-中国联通)	60.247.99.171 (北京市-中国电信)	219.142.91.12 (北京市-中国电信)	218.205.188.49 (北京市-中国移动)	140.206.54.1 (上海市-中国联通)	211.95.81.2 (上海市-中国联通)	61.129.61.130 (上海市-中国电信)	180.169.80.1 (上海市-中国电信)	117.184.125.145 (上海市-中国移动)
安徽省	中国电信	0.039	0.042	0.042	0.028		0.192	0.015	0.066	0.015	0.063	0.081
北京	中国电信	0.024	0.02	0.066	0.201	0.008	0.267	0.05	0.09	0.036	0.08	0.042
福建省	中国电信	0.1	0.032	0.052	0.048	0.008	0.257	0.027	0.032	0.028	0.032	0.035
甘肃	中国电信	0.034	0.032	0.038	0.042	0.076	0.247	0.054	0.246	0.079	0.066	0.238
广东省	中国电信	0.198		0.113	0.247	0.079	0.642	0.152	0.287	0.097	0.073	0.095
广西壮族自治区	中国电信	0.063	0.199	0.102	0.052	0.098	0.075	0.105	0.249	0.042	0.047	0.15
贵州省	中国电信	0.068	0.07	0.07	0.073	0.07	0.243	0.07	0.07	0.065	0.062	0.073
海南省	中国电信	0.054	0.055	0.055	0.066	0.057	0.131	0.051	0.096	0.051	0.093	0.059
河北省	中国电信	0.065	0.099	0.016	0.015	0.017	0.08	0.084	0.041	0.087	0.041	0.04
河南省	中国电信	0.074	0.033	0.031	0.071	0.03	0.337	0.138	0.048	0.103	0.095	0.043
黑龙江省	中国电信	0.28	0.047	0.093	0.033	0.034	0.199	0.074	0.163	0.104	0.058	0.073
湖北省	中国电信	0.194	0.043	0.04	0.028	0.03	0.095	0.175	0.081	0.034	0.022	0.029
湖南省	中国电信	0.137	0.146	0.093	0.077	0.134	0.182	0.183	0.145	0.032	0.031	0.034
吉林省	中国电信	0.067	0.078	0.061	0.211	0.189	0.226	0.228	0.079	0.116	0.125	0.349
江苏省	中国电信	0.09	0.086	0.037	0.034	0.049	0.149	0.116	0.06	0.011	0.013	0.018
江西省	中国电信	0.056	0.072	0.066	0.051	0.094	0.143	0.122	0.084	0.026	0.027	0.077
辽宁省	中国电信	0.181	0.131	0.031	0.011	0.072	0.235	0.195	0.057	0.098	0.111	0.059
内蒙古自治区	中国电信	0.091	0.092	0.194	0.045	0.029	0.235	0.136	0.093	0.066	0.073	0.074
宁夏回族自治区	中国电信	0.06	0.051	0.102	0.033	0.03	0.233	0.137	0.137	0.058	0.236	0.058
青海	中国电信	0.059	0.061	0.073	0.038	0.033	0.582	0.08	0.101	0.059	0.053	0.056
山东省	中国电信	0.049	0.055	0.054	0.03	0.066	0.13	0.026	0.073	0.03	0.032	0.074
山西省	中国电信	0.027	0.022	0.02	0.018	0.019	0.232	0.042	0.045	0.044	0.053	0.14
陕西省	中国电信	0.137	0.132	0.374	0.031	0.032	0.24	0.28	0.094	0.063	0.043	0.144
上海	中国电信	0.102	0.051	0.098	0.037	0.125	0.187	0.194	0.101	0.059	0.008	0.107
四川省	中国电信	0.116	0.064	0.067	0.112	0.053	0.115	0.056	0.059	0.053	0.046	0.066
天津	中国电信	0.243	0.085	0.252	0.143	0.017	0.417	0.072	0.066	0.052	0.048	0.189
西藏自治区	中国电信	0.09	0.1	0.091	0.062	0.064	0.133	0.098	0.095	0.091	0.084	0.105
新疆维吾尔自治	中国电信	0.117	0.263	0.164	0.067	0.108	0.232	0.271	0.136	0.09	0.086	0.083
云南省	中国电信	0.066	0.117	0.071	0.073	0.2	0.65	0.056	0.055	0.045	0.045	0.106
浙江省	中国电信	0.098	0.098	0.1	0.041	0.04	0.305	0.011	0.196	0.063	0.101	0.059
重庆	中国电信	0.055	0.062	0.065	0.068	0.074	0.258	0.146	0.1	0.151	0.066	0.106

Change the end-user routing base on real time end-user experience and traffics, point each single customer to the “best service” pop site。

Best Service means:

1.Best current end-user experience

2.Best networking status and traffics

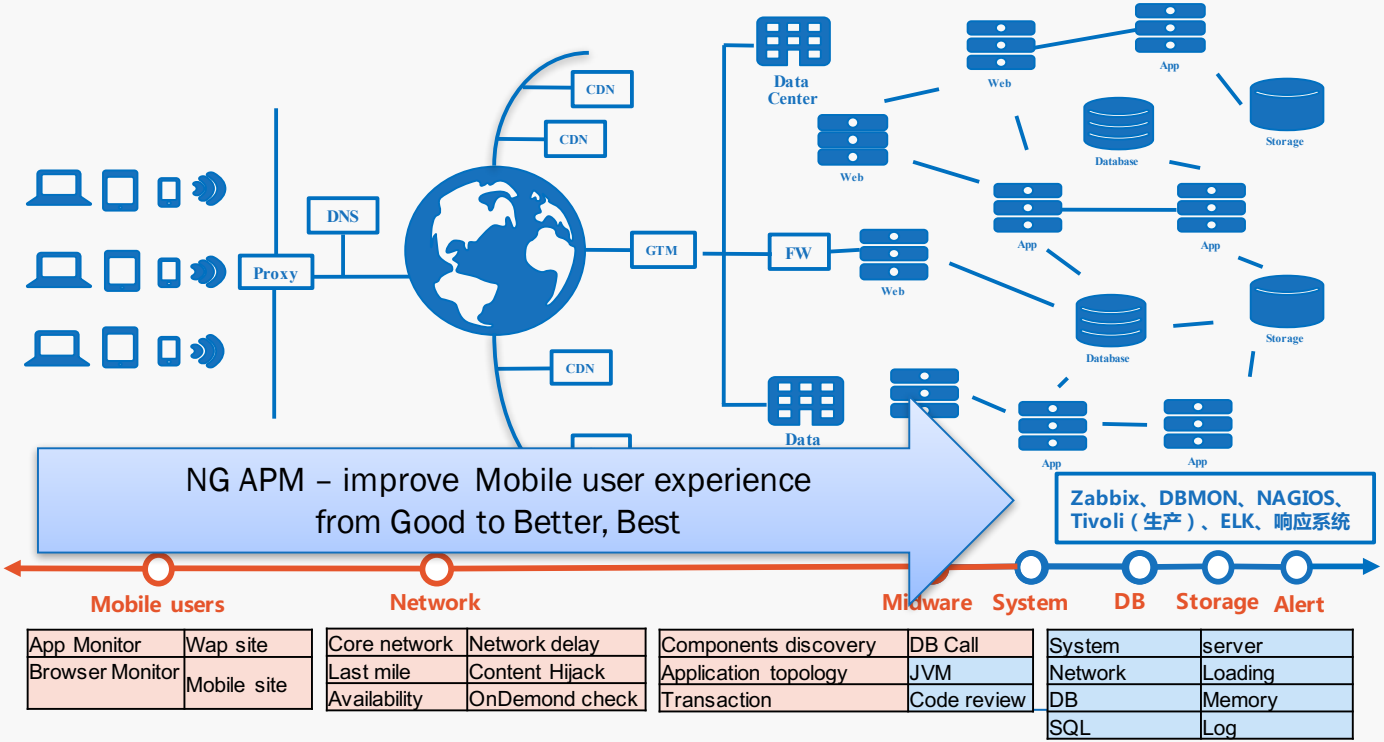
3.Best price ☺

Combine APM into current SRE/Ops

Widen : Taking care of Mobile user experience

Deepen : Get into application topology and Code execution

Auto : Automatic application routing base on real time customer experience



App Monitor	Wap site
Browser Monitor	Mobile site

Core network	Network delay
Last mile	Content Hijack
Availability	OnDemond check

Components discovery	DB Call
Application topology	JVM
Transaction	Code review

System	server
Network	Loading
DB	Memory
SQL	Log

Good, Better, Best, Mobile user's experience

Scoring

- Standardization
- Setup the KPI for end-user experience
- Comparison in same industry/region

End-End

- From end user to DB
- Transection and user group event
- Application topology

Service

- 7x24 Monitor&Alert
- Onsite Service
- Load testing before event
- Expertise workshop, exchange platform

Good, Better, Best, Mobile user's experience

- Combine the NG-APM with current SRE/Ops, protect IT investment
- Find the root cause of the performance issue, before customer complain, fix the issue before big lose
- SaaS + Service, lower the Capex&Opex, improve IT operation efficiency

End user experience, the beginning of SRE and also the destination of SRE

Thank you