

Resources for Microservices and Business Domain Solutions for the Cloud Architect / Microservices Architect

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| Whole Solutions for Microservices | Streams / Queues / Message brokers | Package Management / Build tools | Agile Sprint Planning / Bug Trackers | Storage of Packages / Deployments | CI / CD | Utilities |
|--|--|----------------------------------|--------------------------------------|-----------------------------------|-----------------|-----------------------|
| Spring Cloud | Apache Kafka | Java: | Jira | Artifactory | Jenkins | POSTMAN |
| Apache Zookeeper | RabbitMQ | Maven | Gitlab | Nexus | TravisCI | Charles Proxy |
| CloudFoundry (PaaS oriented to app deployment) | Spring Cloud Stream | Gradle | Bugzilla | Azure Artifact | Azure DevOps | Kitematic |
| JHipster | NServiceBus | Ant | | Amazon S3 | Azure Pipelines | DockStation |
| Heroku (PaaS) | Masstransport | Python: | | Maven | GitLab | Docker Desktop Client |
| | Mosquitto RabbitMQ | pip | | Artifactory | GoCD | |
| | Amazon Simple Notification Service (SNS) | Php: | | DockerHub | Jenkins X | |

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| | Amazon Simple Queue Service (Amazon SQS) | Composer | | | Spinnaker | |
| | ActiveMQ | Docker: | | | CircleCI | |
| | NATS | Docker composer | | | Amazon CodeDeploy | |

| Cloud Design (Infrastructure as Code) | Virtualization pieces | Log collectors / aggregators and management | Tracers / Requests Data visualization | Data Serialization / Messages definition | Databases | In Memory Engines / Read Caches |
|---|--|---|--|--|---|---|
| Terraform Amazon Cloud Formation | Kubernetes Docker Docker from Amazon, Google, Azure Mesos LXD OpenStack Proxmox VMs & Hypervisors Vagrant VirtualBox VMWare KVM QEMU Xen | Log stash Elastic Search Kibana (plugin for elastic) Papertrail Graylog Splunk Sumo Logic Fluentd Logspout Docker Container AWS CloudTrail (records AWS API calls) | Zipkin (microservices calls, including internals) AppDynamics DataDog | Apache Avro Proto Buf Thrift gRPC | MySQL Mariadb Postgree MongoDB Cassandra Amazon DynamoDb Amazon RDS Oracle Clickhouse (columnar) InfluxDB (time series) MemSQL Hadoop Hive Azure TableSpace | MySQL Memory Engine Redis Memcached Amazon ElastiCache |

| Shared Filesystems | Load Balancers | Reverse Proxies | Web Servers with cache support | Server Health Monitor | API Gateways | Service Discovery |
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| NFS Amazon S3 (eventual consistency) Quobyte Ceph Glusterd Hadoop Distributed File System (HDFS) ---- Not shared, but with interesting features for Docker, like copy-on-write, which saves tons of space. You can have NFS on top: ZFS (also has compression) BTRFS | Nginx Ribbon (for Client side Load Balancer) (Consider Ip failover for supporting several LBs) | Squid Nginx Apache Traefik Varnish | Nginx Varnish | Zabbix Nagios Prometheus Collectd New relic agent Amazon CloudWatch Microsoft Application Insights Monitor.us Monitis Datadog Azure AKS monitor (for Kubernetes) Splunk Graphite | Kong Mulesoft Netflix's Zuul Azure Application Gateway KrakenD Amazon API Gateway Ocelot (for ASP.NET Core only) | Eureka Consul |

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| | | | | Grafana | | |
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| Documents | Books | Key concepts | FrontEnd | Serverless | Design flows | Composers |
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| The 12 Factor App http://12factor.net http://www.reactivemanifesto.org | Site Reliability Engineering, by google The Site Reliability Workbook, by google AWS Certified Architect Official Study Guide Building Microservices by Sam Newman, O'Reilly Hands-on Full Stack Development with Spring Boot 2.0 and React, Ed: Packt Docker Up & Running, shipping reliable containers in production, by Sean P.Kane & Karl Matthias, Ed. O'Reilly Continuous Delivery with Docker and Jenkins, by Rafal Leszko, Ed. Packt | Business Domain SRE DevOps API How big is the Team? Correlation ID Eventual consistency Event subscription Client side load balancing OAUTH2 PEP (Policy Enforcement Point) Immutable Images Canary deployment | AngularJS View.js Bootstrap jQuery | AWS Lambda | JDL-Studio JHipster Domain language draw.io Microsoft Visio | PHP Composer Docker Shipyard Docker Composer Docker compose UI |

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| | <p>Kubernetes Handbook</p> <p>DevOps on the Microsoft Stack by Wouter de Kort</p> <p>Building Microservices Applications on Microsoft Azure, Apress</p> <p>Spring Services in Action by John Carnell, Manning</p> <p>Effective Java, by Joshua Bloch (google)</p> | | | | | |
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| Provisioning | Run Tasks | Agents / Data Collectors | Correlation ID injectors | CDNs | Web Servers | Server Data Visualization |
|--|-----------|--------------------------|--------------------------|---------------------------------|---|---------------------------------------|
| Idempotent: Chef Puppet Salt Juju Agentless/Stateless: Ansible (many modules are idempotent) | RunDeck | Telegraf | Spring Cloud Sleuth | Akamai Amazon CloudFront | Apache lighthttp NGinx Varnish Java: Apache Tomcat ServletExec Weblogic | Grafana Splunk Graphite |

| Unit Testing | Integration Testing / Functional Testing / A/B Testing / Behavior-Driven | Email delivery | Security | IDEs for Development | API Development Frameworks | Git Repository |
|--|--|-----------------------------------|------------------------------------|--------------------------------------|--|----------------------|
| Java: JUnit Php: | Selenium Apache JMeter | Amazon Simple Email Service (SES) | AWS Web Application Firewall (WAF) | Java: IntelliJ Netbeans | Java: Spring Boot PHP: | Github GitLab |

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| PHPUnit Python py.test | BDD: BeHat Cucumber | | | PHP: PHPStorm Python: PyCharm .NET: Visual Studio Code | Laravel Symphony Catalonia Framework NET: NET Core | BitBucket Heroku (with free account to deploy your own applications) |
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Certificates:

<https://letsencrypt.org/es/>
 cheapssl

Query lang:

<https://graphql.org/learn/>

Validation:

<https://json-schema.org/>
<https://www.jsonschemavalidator.net/>

Specification:

<https://jsonapi.org/>

Aggregation stats:

statsD, rsyslog

Tutorials:

<https://www.digitalocean.com/community/tutorials>

[Spring Boot tutorial https://www.youtube.com/watch?v=vtPkZShrvXQ](https://www.youtube.com/watch?v=vtPkZShrvXQ)

Tip: The most layers of Software you add, more possibilities are of introducing single point of failure SPOF.
And you have to monitor more Servers, for example, the RabbitMQs, that they don't get without Free Space on disk.

Tip: you can use Compression to your Storage Logs with ZFS

Tip: Is important to routing internal API endpoints through internal API Gateway calls only from other Microservices. So is not possible to call from outside.