پک حرفه ای متخصص اینترنت اشیا

فهرست سرفصل‌های دوره‌های آموزشی

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سرفصل‌های دوره آموزشی

Python

Introduction:

- Python History
- Python Features & usage
- Python versions & differences
- Interactive Environment and Interpreter of Python
- Python IDEs and PyCharm
- Running Python files from Terminal & IDE by example
- PyCharm Environment & Debuging with PyCharm

Python program structure:

- Storing code and running program
- Variables and Datatypes
- Naming rules & conventions
- Getting user input and displaying output to terminal
- Introduction to Object Oriented programming & Objects in Python
- Modularity & Python libraries
- Installing & using libraries in python

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Computational Operators:

- Logical Operators
- Operator priority
- Exceptions & Exception Handling in Python
- Basic DataTypes & Literals
- Lists, Tuples, Sets, Sequences and dictionaries
- List & Tuple Methods Slicing And Concatenation of Sequences
- Dictionary methods
- List Comprehensions

Strings and coding:

- Unicode
- Excape Characters
- Multiline Strings
- Type casting in python
- String Methods
- String formatting

Conditional statements:

- Loops
- For loop
- While loop
- Loop controlling statements
- Nested Loops
- Using loops on Sequences & dictionaries

Working with files:

- Binary & Text files
- File Opening modes
- Working with file offset pointer
- Bytes and bytearrays
- With statement
- Working with csv files

Functions in python:

- Function definition structure
- Documenting objects in python and self documented concept
- Calling functions variable scope in functions (global, local , nonlocal)
- Optional function parameters
- Lambda functions

Libraries in python:

- Library Structure & Creating Libraries
- Separating program logic from helping entities
- Frequent libraries & their usage
- Sys library
- Getting script parameter from terminal
- Os library
- Working with OS directory structures using os library

Regular Expressions:

- Re library
- Urllib & request libraries
- Web scraping using urllib, request & re libraries

Class definition:

- Class initiation
- Inheritance
- Class methods and variables
- Example of using classes versus functional programming

Zabbix

Introduction:
Monitoring Concept

- Define a sample Telecom service flow

What is ZABBIX
-
- ZABBIX functionality
- Usage of ZABBIX in DevOps and ITIL

Architectures

- ZABBIX components diagrams
- Metric collection methods

Installation: Server, DB, GUI:
OS Preparation:

- Network time protocol
- Timezones
- Firewall

How to get ZABBIX and select version:
Server requirements

- Web Server Installation (apache)
- Database Installation (MariaDB)

Installing ZABBIX from packages (v 5.0)
ZABBIX from sources
ZABBIX from docker

Front-end requirements

- PHP installation and Configuration
- Create SELinux policies for ZABBIX
- ZABBIX Setup Wizard

Quick Start:

Adding first host
Adding first item
Adding first trigger
Receiving problem notification

Monitoring (Introducing Web Interface Menu):

Hosts

Overview

Latest data

- Simple graphs
- Graphs for multiple elements
- Applications
- Problems

Configuration:

Host groups

- What is host group?
- How to define Host group?

Hosts

- Deep into host definition options
- Inventory
- Getting information Manually
- Auto-collection method

Items new/modify
Item definition options

- Name, Type, Key, Units, Interval, Application, …

Item Types (Data Collection Methods)

Agent-less monitoring

- Simple checks
- ICMP Checks
- SSH/Telnet checks
- Check Mysql status
- SNMP monitoring
- SNMP traps
- Set-up SNMP traps

ZABBIX agent passive checks

- Agent Installation

Intro

Linux Agent installation from packages

- Monitoring Apache web server with Agent
- Monitoring Linux OS with Agent

ZABBIX Agent 2
ZABBIX_server, ZABBIX_get, ZABBIX_agent
ZABBIX Agent active checks
Agent user parameters

Agent for Windows (Optional)

HTTP Checks

- Getting Value using API

Web monitoring

- Create Web scenario

Dependent items
Log file monitoring

Service Monitoring

- Defining SLA

Network Services Monitoring

- Monitor SSH service

ODBC Monitoring

- Setting up ODBC
- Monitor Live data in Mysql

External Check

ZABBIX Trapper

- ZABBIX_sender

Calculated checks

Aggregate checks
Promethus Integration
ELK Integration
Preprocessing
Value map
Data visualization
Custom graphs
Maps
Screens and Slide shows
Dashboard and widgets overview
Grafana Integration
Problem detection

Events

- Global event correlation

Triggers, less sensitive triggers, dependencies

- Trigger-based event correlation
- Preventing trigger flapping

Trigger Event tags

Built in and User macros functionality

More trigger examples

Advanced problem detection

- Predictive trigger functions

Macros

Using templates

Creating a template

Linking templates to hosts

- Handling default templates
- Changing the configuration in a template
- Macro usage
- User macros

Using multiple templates

- Unlinking templates from hosts

Using mass update

Nested templates

Reports

- Availability Reports
- Top 100 Triggers

Automation

Discovery

- Network discovery, Auto-Registration

LLD overview

- LLD of ODBC objects
- LLD of SNMP objects
- LLD of JMX objects
- Custom LLD rules

Creating Item Prototype

Creating Trigger Prototype

Item filters/mass edit and check now/clear history

Notifications

- Overview

- Proactive monitoring

Actions

Conditions

Operations

- Sending message
- Media Types
- Sending Email Notification
- Sending SMS Notification
- Sending Telegram Notification
- Remote commands
- Additional operations
- Using macros in messages

Recovery operations

Update operations

Escalations

Maintenance

Distributed monitoring

Proxy overview

- Proxy Setup
- Monitoring by external ZABBIX instance
- Queue Management

Distribute Database

Distribute Web Frontend

High availability and redundancy

Performance tuning

Overview and configuration

 ZABBIX Tuning

OS advanced tuning

- Kernel settings

High-performance HTTP server (NGINX)

ZABBIX API

- Overview
- Getting data

Security

Encryption Overview and configuration

Secure ZABBIX Frontend with SSL

Agent keys whitelist/blacklist

User permissions

- Create user, user group and set permissions
- Audit users

Authentication Methods

- AD and HTTP authentication

Administration

- ZABBIX Server Configuration file
- ZABBIX server processes
- XML Import/Export
- Working time, housekeeper
- Frontend scripts
- Frontend Modules
- ZABBIX server health
- ZABBIX DB schema overview
- MySQL partitioning
- High-performance storage engine (Elasticsearch)
- Real-time data export

Open Stack
Cloud Computing

Concept of Cloud Computing

- Learning IaaS, PaaS, SaaS
- Reviewing of Linux Command
- Install RDO OpenStack distribution with PackStack

Identity Management (Keystone)

- Architecture and Main Components of Keystone
- Managing Keystone Catalog Services and Endpoints
- Managing/Creating Projects, Users, and Roles

Image management (Glance)

- Architecture and Main Components of Glance
- Deploy Image
- Managing Images
- Managing Image Back Ends

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OpenStack Compute (Nova)

- Architecture and Components of Nova
- Managing Flavors
- Managing Hypervisor
- Managing Key pairs
- Managing Quotas

OpenStack Networking (Neutron)

- Architecture and Components of Neutron
- Architecture of Open vSwitch
- Manage Network Resources (DHCP, Router, Floating IPs ...)

OpenStack Dashboard (Horizon)

- Architecture of Horizon
- Managing Horizon

Block Storage (Cinder)

- Architecture and Components of Cinder
- Manage Volume
- Managing Volume on the LVM and NFS
- Manage Quotas
- Back Up and Restore Volumes and Snapshots

Object Storage (Swift)

- Architecture and Components Swift Object Storage
- Managing Storage backend
- Monitoring Swift Cluster

Orchestration of OpenStack (Heat)

- Architecture and Components of Heat
- Introducing the Heat OpenStack Template
- Launching a Stack Using a HOT

Troubleshooting

- The Main Principles of Troubleshooting
- How to Check the OpenStack Version
- Where to Find and How to Analyze Log Files
- Back Up the Database Used by an OpenStack Instance
- Analyze Network status