



# PRIYADARSHINI ANAND

## Contact Details

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## Education

MCA in 2004 from Bangalore University with distinction.

## Interests

Watching business news and current affairs, doing wealth management, cooking food, doing social work and travelling

## Summary

- A **visionary leader** with architectural skills, 16+ years of exceptional development experience in product companies, unparalleled passion and insight to elevate any service, application, cloud platform infrastructure or data operation to cloud
- At present, I am working in **Cisco** leading development work for core components of **Cisco DNAC, cloud group**. Earlier, I worked in **Contrail SD-WAN Cloud group of Juniper Networks** for 4 years. Prior to that, I was leading design and development of IBM public cloud in **IBM** software labs for 3 years.
- In Cisco, I am responsible for design and development of micro services for Disaster recovery in DNAC. In Juniper, I was responsible for design and development of micro services for intent-based network model used for enforcing application-based service level agreements (SLAs) based on WAN network profile, break out profiles, traffic rate limiters and application configurations for SD-WAN. In IBM, I was responsible for public cloud stack automation. I was also recognized for innovative work done for developing "Time to Value validation service" as independent Open stack component.

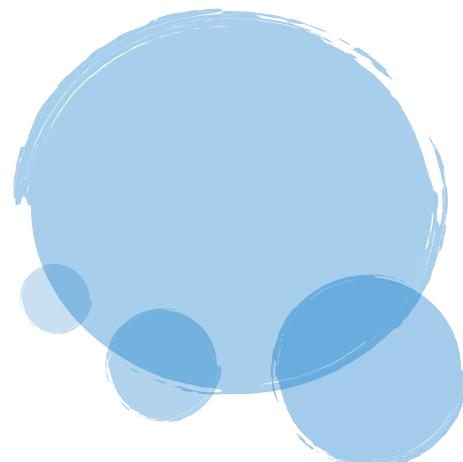
**Skills:** In cloud domain, I am playing technical lead role from 8 years on products build from scratch using cutting edge technologies and concepts like **Cloud Computing, Python, Micro services, PaaS, SaaS, SD-WAN, NSO, NFV, Cluster management, Kubernetes, docker, containers, Open Stack, JAVA, REST APIs management, DEV OPS, NET OPS, Intent based network modelling, AWS, ELK, AMQP, multi-threading, performance tuning and optimization, on demand scale-out modelling, data structures** etc.

## Professional Accomplishments and Recognitions

- Honored with Manager's Choice Award in November 2014 for the practice "Show Personal Interest"
- Honored with 1-3-9 champion award in Mar 2014 for "Restlessly reinvent - our company and ourselves"
- Honored with Bronze Award in 2012 for Product Customer Champion
- Honored with Cause of Applause Award in 2011

## Certifications and Publications

- AWS Solution Associate
- IBM certified Rational Software Architect
- EMC certified Information Storage Associate
- ORACLE certified Associate
- Scrum Certified
- **Blogs** (See links at last page)
  - [Kubernetes: Pilot project by Google for container cluster management](#)
  - [Pod in Kubernetes: A driverless vision](#)
  - [Business Maturity on DevOps Model](#)
- **Videos and presentation slides** (See links at last page)
  - [Docker and Containers](#)
  - [Kubernetes](#)



## ANNEXURE – Skills

COMPTECY AREA	SUMMARY
Analysis & Requirements	Detailed Analysis, evaluation and defining/ understanding Requirements
Technical Architecture	Proposals shared for architecture changes for better modularity, scale, performance and user experience
Design, Development, Integration, Unit testing & documentation	<p>Key skills are as follows:</p> <ul style="list-style-type: none"> <li>• Python, Java, C++, Ruby, Shell, Batch, Dynamic Programming</li> <li>• OOPS, Design patterns, Data Structures, Micro Services architecture</li> <li>• Linux, KVM, AIX, Windows, Sun Solaris</li> <li>• Kubernetes, AWS, Open Stack, Docker, Containers</li> <li>• StackTach, Log Collector, Kibana, Elastic Search, Logstash, Sensu</li> <li>• JSON, XML/XSL/XML Schema, YANG, JINJA</li> <li>• NSO, NFV, HTTP, REST, XMPP, TCP/IP</li> <li>• SQL &amp; PL/SQL, Oracle, MySql, Cassandra</li> <li>• UML, Rational Rose, Enterprise Architect</li> <li>• PyCharm , Eclipse, JDeveloper 10g, Netbeans</li> <li>• VMware Infrastructure Client 3.x, 4.x, Tomcat</li> <li>• Chef, Jenkins, GIT, Clear Case, CVS, Perforce, Subversion, RTC</li> </ul>
Leadership	<ul style="list-style-type: none"> <li>• Good in vision casting, monitoring, coaching and motivating team</li> <li>• Hard working with good problem-solving skills</li> <li>• Have high standards of competence and performance</li> </ul>

## ANNEXURE - Professional Experience and Work Summary

**# Cisco (Cloud group): October 2019 – till present**  
**Product: Cisco DNAC product in Cisco Cloud group**

I am working on design and development of Disaster Recovery Micro services for Cisco DNAC. DNAC three node cluster architecture is not resilient to environmental failures that can bring the cluster down or isolate cluster from the rest of the network. Disaster Recovery (DR) Micro services provide safeguard against such environmental failures. DR systems are designed as peers separated by geographical distance so that impact of environmental failure is mitigated. One of the fundamental traits of a highly available systems is that the data is available on failure so that another system can act on it and continue the operations. I am leading team here to implement core workflows of this enterprise mandatory DR.

**Environment:** Micro service architecture, Python, Java, Containers, Kubernetes, Micro services, Open stack, AWS

**# Juniper Networks (Cloud group): October 2015 – September 2019**

**Product: SD-WAN product in Juniper Cloud group**

I build cloud grade solutions that can scale on demand and are self-managed. I am working on the next generation of Contrail Cloud services platform, to transform Juniper into a cloud-based network company. Juniper Networks' SD-WAN unifies policy and security controls across multiple hybrid WAN connection types. It integrates VPNs and VNFs, provides dynamic path selection for high-priority traffic. With ZTP, you simply ship CPE to your site for automatic SD-WAN access. All branch devices and cloud end points are managed in this way and are supported centrally.

### **Project 1: Intent based Network Model for Policy and SLA management for SD-WAN product**

**Environment:** Python, REST, vSRX, Containers, Kubernetes, JUNOS, Ubuntu, Celery, Cassandra, Kombu

**Description:** I played role of architect to develop this core component of the product. I wrote micro services in SD-WAN solution to provide Intent based network model from a single central location that is used to provide SD-WAN features like as follows:

- Enforcing application-based service level agreements (SLAs) based on WAN link types like MPLS or internet, quality of service, link load, latency, jitter, delay, path loss and throughput.
- Enabling application aware routing for different departments across different sites in different regions.
- Providing on demand traffic profiles for class of services and queues for each WAN links across different sites in different regions.
- Enabling monitoring and controlling network links by tracking traffic of each application on each link, verifying service level agreements, understanding network performance, prioritizing, handling policy violations, traffic routing by link switching.
- Enforcing application-based break out profiles to route internet bound traffic to exit from spoke or hub or cloud based on business need.
- Enforcing application-based traffic rate limiters to control band width and burst size for each SLA.
- Enforcing adding or removing application configurations on demand basis on each site.

Above functions help in optimum utilization of the WAN links, efficient load distribution of traffic, ensuring required quality of experience of network for applications. This in turn, result into increasing productivity, lowering operational costs, reducing the frequency of network outages and assisting administrators with network troubleshooting.

Highlights of work done by me:

- Worked on Requirement analysis and design and architecture using Yang, prepared Functional and design specification documents
- Driven collaboration with 11 teams to resolve dependencies and designed interfaces
- Done coding and unit testing in Python
- Mentor for junior team members to provide technical guidance
- Point of contact for clients for product demonstration, POCs, Surveys and enabling them to use the product

It was first workflow to understand high level business intent of network administrator and, derive and commit the configuration what network devices can understand. Architecture supports parallel distribution of work on per site basis, single atomic commit for each site, different plug-ins to support different devices, DB operations for maintaining operational data consumed for different other statistical operations. Complex algorithms written for intent-based snapshot model implementation and finding what and where network configuration is required in scaled and distributed enterprise network.

### **Project 2 – Micro Service Management using Kubernetes, docker and HA proxy**

**Description :** Micro-service management (MSM) component is written as part of xCPE product. It is responsible for deploying and managing 90 different micro services using Kubernetes, docker and HA proxy. It provides set of REST APIs that can be used by admin portal and other components inside product. MSM abstracts the interface with the

container cluster manager and load Balancer using plugins. It provides plug ins to connect to Kubernetes and HA Proxy.

My contribution -

1. Worked on Requirement analysis and prepared Functional specification
2. Designed MSM using Yang model and written Design specification
3. Done Coding in Python with 100 percent unit coverage
4. Learnt how to deploy and use Kubernetes on own
5. Written client for Kubernetes APIs
6. Educated team on how to use Kubernetes and docker

# IBM (ISL - Cloud group): February 2013 – October 2015

Product: ALCHEMY/ Ice Castle (Blue Mix) in IBM – ISL Cloud group

### Project 1 : TTV – Time to Value component – new Open Stack component

**Environment:** KVM, Python, OpenStack, REST

**Description:** Highlights of work done by me:

1. Developed Complex independent open stack validation component/ service - ICVC validation service
2. Configuration and automation of TTV validation service on management node
3. Written All REST APIs: GET validate, GET validate/result, GET validate/category/list, POST validate, POST validate/result
4. Designed and developed Result Manager and Category Manager, two important components of architecture
5. Written 24 different validations scripts in Python that run on compute nodes
6. Point of contact for clients for product demonstration and POCs

I got recognition as 1-3-9 champion for “**Restlessly reinvent – our company and ourselves**” for my work.

### Project 2 – Containers and DOCKER implementation in IBM public cloud

**Description:** I worked on -

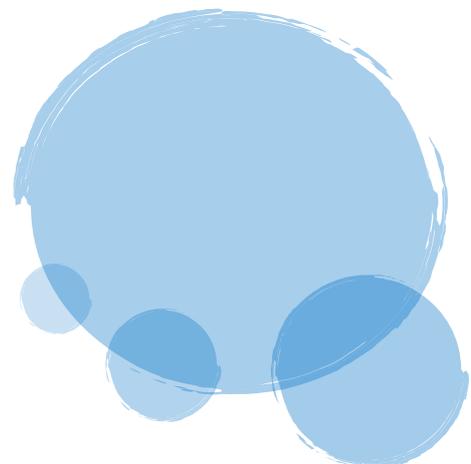
1. Done analysis on all container and docker image life cycle operations using controller GUI
2. Found nova and glance APIs for docker containers and docker images
3. Collected details wherever docker and open stack integration is broken and provided suggestions on how to fix
4. Worked on docker configuration, integration with open stack and deploying containers with HEAT templates.

### Project 3: DEVOPS Project for public cloud stack automation

**Environment:** KVM, RHEL, Ubuntu, Python, Open stack, REST, Soft layer, Jenkins, Shell

**Description:** I worked on automating setting up public cloud. I had to do deep dive into REST APIs from Soft layer software, Operation manager and Open stack for this. It was hard to solve problems as we don't have any documentation or complete information. I automated following operations to make public cloud ready to use:

- Prepare systems by OS loading and dependent software installations
- Deploy cloud software components one KVM
- Create instance of VMs and docker images
- Create docker availability zone and aggregates
- Execute docker verification tests
- Configure internal data network
- Configure Floating IP
- Do OS user management and SSH access hardening
- Set SE Linux enforcement
- Apply firewall rules



- Chef recipe for configuring LDAP server (using Active Directory) on all type of nodes to connect to USAM to access machines in Soft Layer environment.

**# EMC2: June 2009 to February 2013**

**Product: SDA Host Resource Manager of EMC Prosphere**

**Project 1:** SDA Host Discovery for Data Migration Products

**Environment:** Java, ASL, C, Eclipse, Windows, Linux, Solaris, AIX, VMWare Infrastructure Client, JUnit, OOPS, UML, Enterprise Architect, Subversion, Perforce

**Description :** It is to discover all possible host information on network. This was required for data migration.

**Roles and Responsibilities:**

Tech Lead, played key role from requirement to release for SDA2.1, SDA2.2, SDA 3.0

- I was successful in completing most complex stories for Windows, Linux and Solaris hosts on HBA, multi-path software, network adapters, network configurations, bios, volumes, disk sets, file systems and delivered consistently on time with zero number of bugs.
- The Stories taken gave me the opportunity to understand and implement BIOS management profile, DNS Client Profile, Ethernet Port Profile, DHCP Client Profile, Computer System Profile, IP Interface Profile and Host LAN Network Port Profile and how they are related with each other. I added the code changes in framework to support the same.
- I investigated on approaches towards host discovery using non-root privileges as well.
- I also took initiative for leading Data Migration Ramp up plan for new members and shared the complete view of project and its delivery.

**Project 2:** Providing alternative solutions to replace the usage of INQ for discovering HBA, disk and drivers information on HPUX Hosts

**Environment:** Java, Eclipse, HP-UX, VMWare Infrastructure Client, JUnit, OOPS, UML, Enterprise Architect

**Description:** The existing implementation was using INQ tool to discover information for HBA, ports, drivers, firmware and devices. The challenge with this approach that customer does not like INQ binaries to be pushed on their hosts due to security reasons. The approach is not recommended one as it is expensive on resource consumption. I replaced this with an alternative approach to get the same information. The solution is to use native OS commands, default CIMOM providers and default utility FCMSUtil to get the required information.

**# Oracle India Private Limited: October 2004 - Jan 2009**

**Product: Instant Messenger of Oracle, Bangalore**

**Environment:** JAVA, Swing, Netbeans, Solaris 10, XMPP protocol

**Project 1:** Implementation of XMPP protocol

**Description:** There were many gaps in existing implementation of XMPP protocol and roster layer. I identified the gaps and have done implementation in Java.

**Project 2:** Gateway Service for AOL/Yahoo/MSN needs to be added to Instant Messenger

**Description:** The client now provides integration with gateways for AOL/Yahoo/ MSN. The packets from third party gateways are handed over to the IM server and XMPP implementation and then, delivered to client implementation. The roster now displays buddies of AOL/ Yahoo/ MSN as well. The Client supports chat, conference, presence, authentication service for buddies of AOL/ Yahoo/ MSN as well.

**Product: Oracle XML Developer's Kit 10g of Oracle, Bangalore**

**Description:** Oracle XML Developer's Kit (XDK) is a versatile set of components that enables you to build and deploy C, C++, and Java software programs that process XML. The standard installation of Oracle Database includes the XDK.

1. XML Parser (in Java & C): Creates and parses XML with DOM and SAX interfaces.
2. XML Schema Processor (in Java & C): Validates schemas, allowing use of complex XML data types.
3. XSLT Processor (in Java & C++): Transforms XML into other text-based formats such as HTML, XML.
4. XSLT Virtual Machine (XVM) (in C and C++): Provides a high-performance XSLT transformation engine that supports compiled style sheets.
5. Java API for XML Processing (JAXP): Enables you to use SAX, DOM, XML Schema processor, XSLT processors, or alternative processors, from your Java program.

I was responsible for new feature development, fixing bugs for above mentioned components of XDK for the next version of Oracle 11.1

**Environment:** JAVA, JDeveloper, XML, XSL, Solaris

### ANNEXURE - Professional Accomplishments and Recognitions

- Honored with Manager's Choice Award - 2014 program in Nov. 2014 for the practice "Show Personal Interest"
- Honored with 1-3-9 champion award in Mar 2014 for the practice "Restlessly reinvent - our company and ourselves":



Priyadarshini Anand, part of the TTV sub-team in Ice Castle Development team has been consistently demonstrating these IBM practices in her day-to-day work. Particularly, in the last month, she took up the challenge of bringing up a new open stack service, called independent validations service, which would be as independent as the other basic services like nova, cinder etc. She worked through all technical issues, helped improvise the design throughout the development cycle, coming up with new suggestions. Her relentless drive to develop and bring up this basic foundation for TTV in Ice Castle is much appreciated.

- Honored with Bronze Award in 2012: Customer Champion for ProSphere Host Discovery. I was selected for this award for closing all customer bugs in the product alone. It includes live meeting with clients, demos, reproducing problems, live debug sessions, and explaining how soon we can help them.
- Honored with Cause of Applause Award in 2011:

*"Priya eagerly volunteered mentoring role for engineers who joined the EMP team. She planned knowledge training sessions in advance and established training material on WIKI pages, which significantly helped project team members. Priya has delivered complex SDA EMP features, which required many ECIM & SDA framework changes for Network Adapter, Solaris Host Information and IP Config stories. Priya prepares UML diagrams for designs and ensures reviews, unit testing and end-to-end functional testing is completed in order to avoid CQs from her deliverables. She always strives to make development practices efficient and successfully develops code in that respect. Her peers in SDA project team recognize that Priyas efforts has improved ramp-up processes."*

#### References:

- Kubernetes: Pilot project by Google for container cluster management  
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