

Blue Umbrella Software LLP



CORPORATE PROFILE

INTRODUCTION



A boutique services company started in Jan 2015

Focused on high technology and emerging technologies



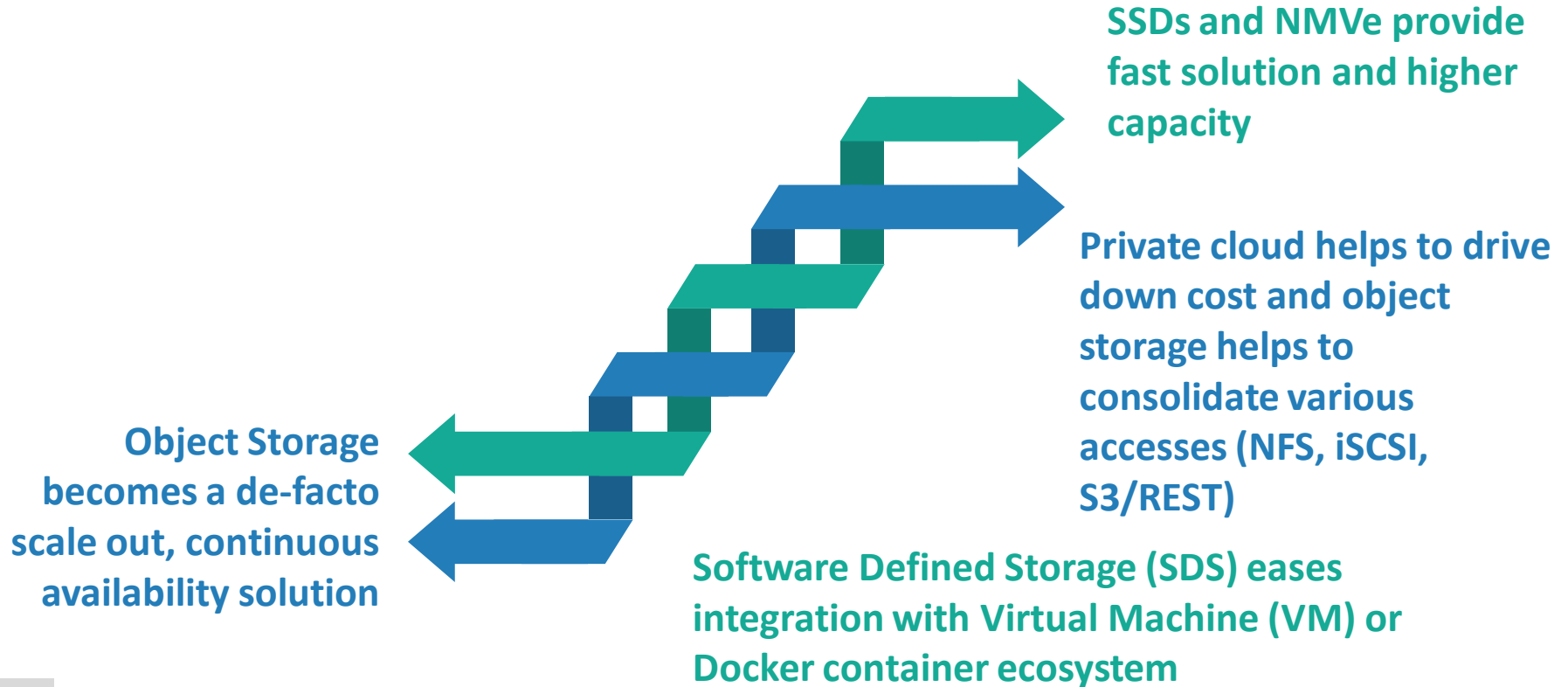
- **Distributed, scale-out object/ cloud storage**
- **Big Data**
- **Machine Learning**



We create small, specialized teams to overcome the talent shortage challenge



TRENDS IN DATA STORAGE



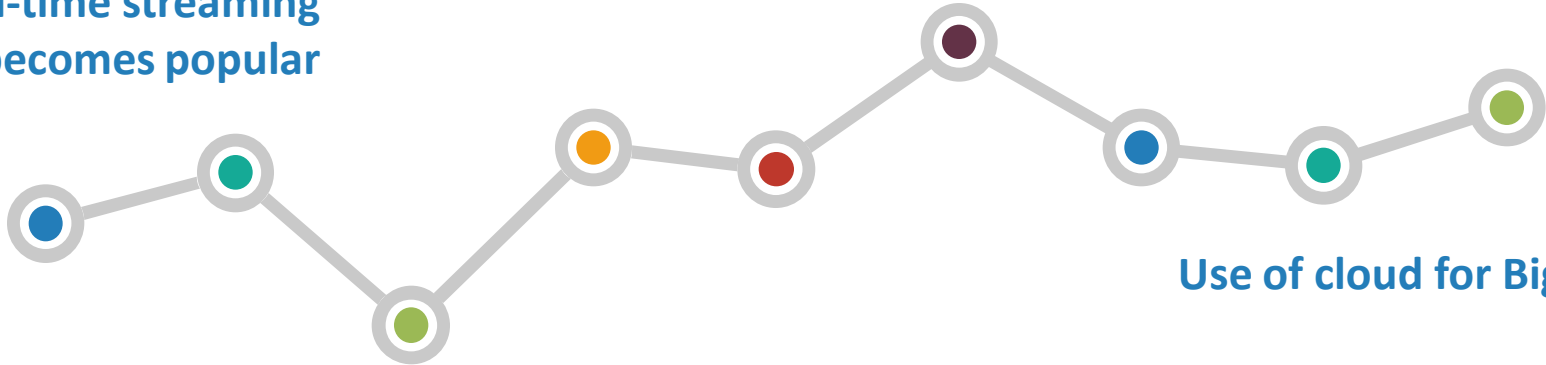
TRENDS IN BIG DATA

Integration with Machine Learning (ML)

- Use Big Data to compute ML models
- Use analysis for ML predictions

Self-service Analytics

Real-time streaming becomes popular



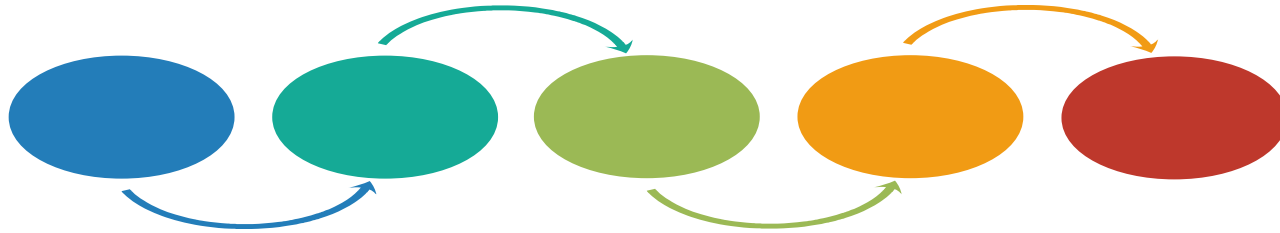
Tools on top of Hadoop framework (Apache Spark, DataTorrent RTS) become popular

Use of cloud for Big Data

TRENDS IN MACHINE LEARNING

Analytics from Big Data is becoming overwhelming, prompting the use of ML as a guidance system

Predictive analysis adoption increasing



Applications across all the verticals are emerging

OUR WORK IN OBJECT STORAGE



Key Offerings:

1. Design, development and QA
2. Build a team
3. Integration with other software such as Hadoop

We have been working with a Silicon Valley startup to develop their scale-out, distributed object storage product for over 2 years.

Some of our contribution includes:

- Developing and enhancing necessary protocols
- Supporting the protocols over TCP
- Cloud-cloud replication
- NFS head for the object storage
- VAAI support for iSCSI and NFS heads
- Fixing problems in distributed algorithms
- Helping to create micro-service using docker containers
- Enhancing management framework in node.JS
- Test Automation using Python

OUR WORK IN BIG DATA



- A partnership with DataTorrent - a real-time stream based Big Data product based on Hadoop
- We participate in their open-source contribution
- Working a project to analyze sports league data using:
 - Hadoop
 - DataTorrent
 - Hadoop Spark
- We use AWS-EMR and are doing a comparative study of these products.

OUR WORK IN MACHINE LEARNING

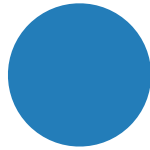


Key Offerings:

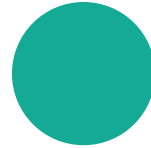
- 1. Test ML models**
- 2. Build ML models**
- 3. Anomaly detection**
- 4. ML Applications in Software Engineering**

- Currently building capability and a focused Machine Learning team
- Working on ML in Log Management to detect anomalies in applications and infrastructure. We can provide services in this area based on ELK-ML stack.
- Also working on predictive analytics using time series (and ML wherever possible) to predict customer payment delays
- We also have plans to provide services for ML in software engineering such as test focus areas, prediction of software release dates etc.

ENGAGEMENT MODELS



Time and material



Fixed Bid can be offered for projects with well defined scope



Lead time to start: Can be bootstrapped initially by an engineer. Later staffing may take 3-4 months based on business objectives

CASE STUDY: SPORTS ANALYSIS WITH HADOOP



We analysed IPL-Cricket using Hadoop. Various statistics for the game were generated, such as

- Total runs scored by all the batsmen across all the seasons
- Total runs scored by all the batsmen across per season

We used Map Reduce framework in various ways to generate statistics

- Simple MapR
- Parallel processing using MapR
- Multi-stage processing using MapR

PREDICTING ACCOUNTS RECEIVABLES WITH ML



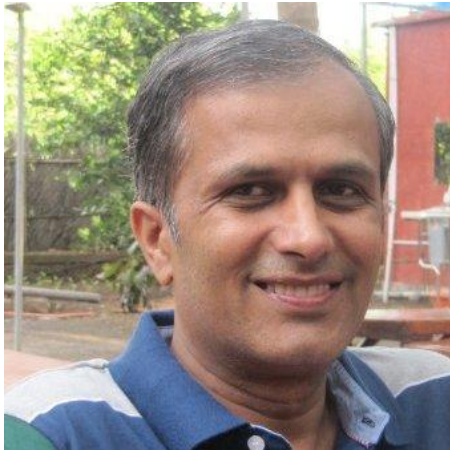
- A business expects to receive payments from customers within 30 days of the invoice date. But often, there are delays
- Financial systems Accounts Receivable (AR) ageing reports. Such reports are reactive, providing after-the-fact analysis
- We are developing a way to use machine learning (ML) to predict:
 - Payment date for invoices
- This will help to:
 - Manage cash flow better
 - Analyse risks

LOG ANOMALY DETECTION USING ML



- Have developed a scale-out, distributed software for our customer
- In distributed systems, logs are distributed among several computers
- When a problem occurs, it's very challenging to detect/debug the problem by sifting through numerous huge log files
- Anomaly detection with ML
 - Will help us to quickly figure out problem areas in the logs
 - Exploring the use of ELK-ML
 - We may develop algorithm if needed

OUR FOUNDER



RAJESH BHALERAO

- Over 25 years of experience in software engineering with over 17 years in data storage
- A decade of experience of working in the Silicon Valley
- Has engineering, management and leadership experience. He is hands-on and recently completed 2 Machine Learning courses
- Has contributed to product development, building several teams, marketing and technical pre-sales
- His most significant contribution during last 5 years are:
 - Building a team developing Exa scale file system built by founding members of Lustre file-system. His team contributed to 60% of this NEW product development
 - Product development and team building for scale-out distributed object store product