Vanilla Corp. – Preparing to Release Solution into Production

Recommendations & Next Steps

Celia Muriel – 9th October 2019

Solutions Architect

CELIA MURIEL

Goal Of This Presentation

- Vanilla Corp. will soon release an major modification in the architecture of their IT ecosystem to better support their core business
- Role of Vanilla Corp.’s IT solution within Vanilla Corp.’s ecosystem
- Status of Vanilla Corp.’s Project
- Deadlines
- Discuss on how to release our solution into production and maintain it in order to most leverage and benefit out of IT investments and support accomplishment of business objectives

CELIA MURIEL

Agenda

- Ecosystem Overview
- Vanilla Corp. Ecosystem Monitoring
- Status Of Our IT Solution
- Expected Used Of Our IT Solution
- Performance Testing
- Governance & Security
- Objectives, Recommendations & Next Steps

CELIA MURIEL

Vanilla Corp. Ecosystem Architecture

Overview of Vanilla Corp.'s Ecosystem Architecture.

20191009_RFID sensor within IT infrastructure.

It is a large architecture, with many systems involved, and interconnected. In order for the architecture to work swiftly, every system must provide with response in a timely manner.

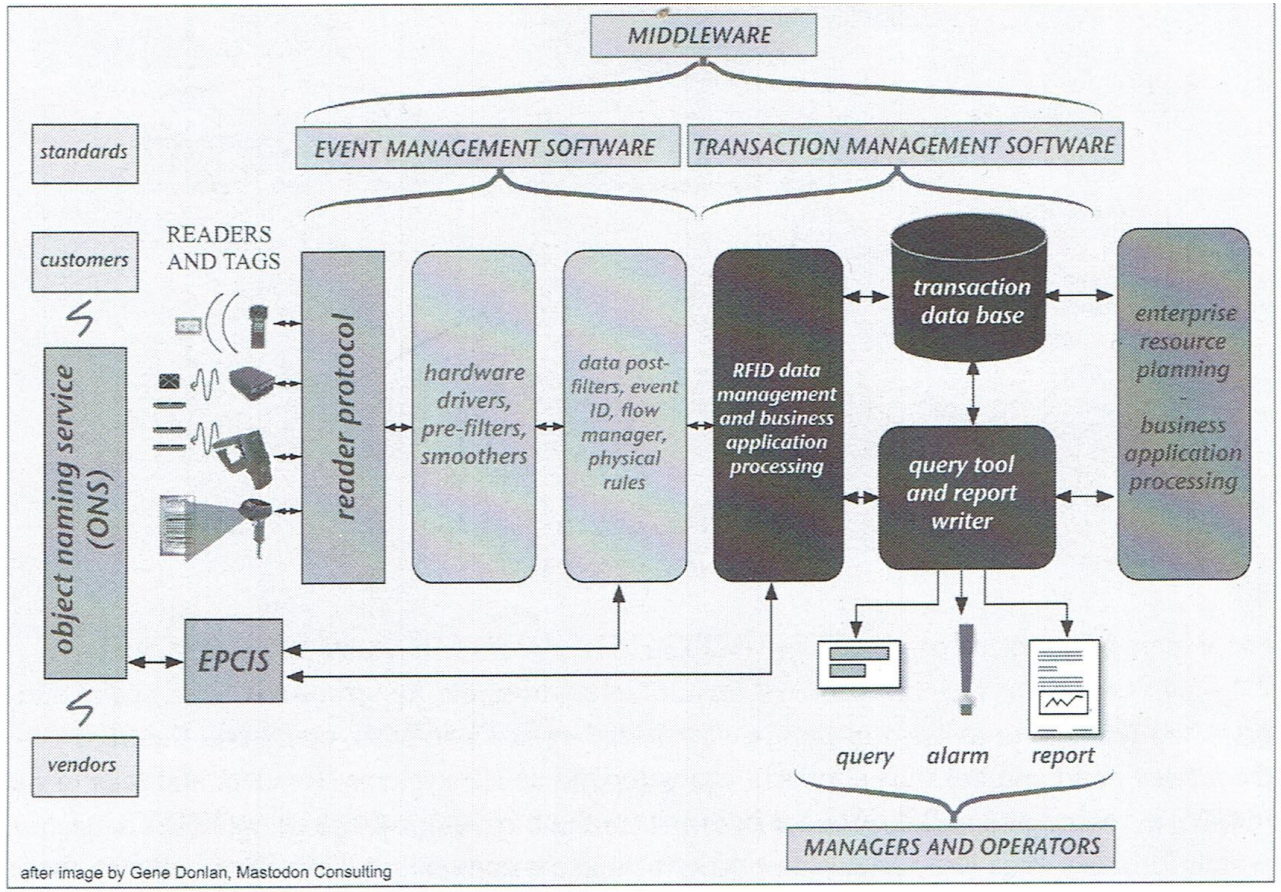


Image via "The RF in RFID. UHF RFID in Practice" by Daniel M. Dobkin. Newnes, Elsevier. Second Edition

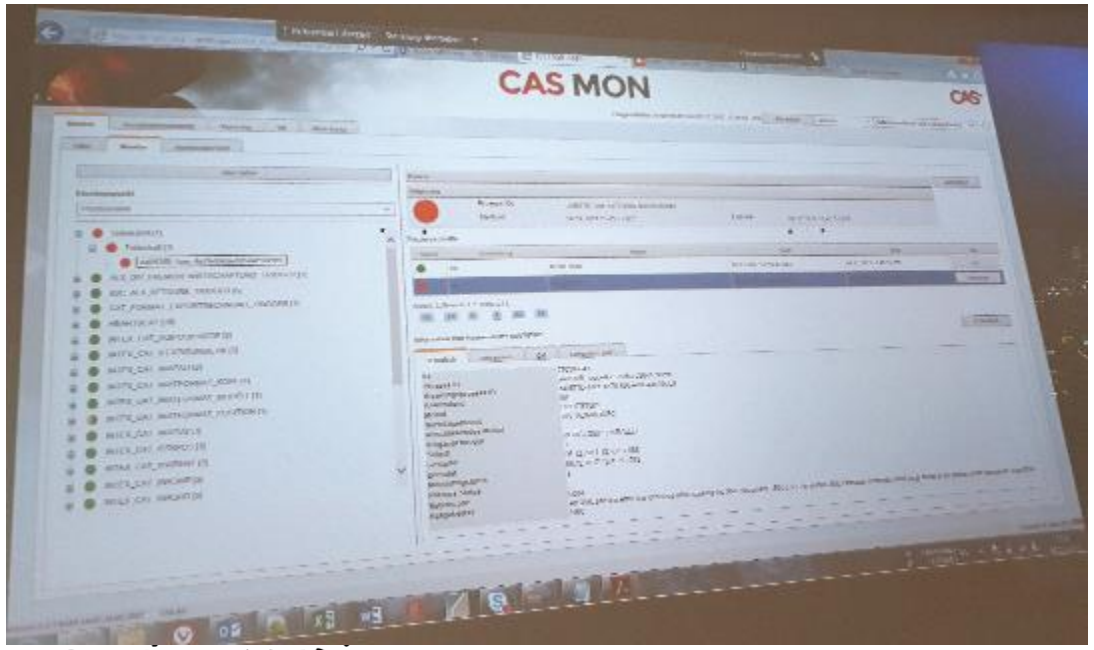
Mission Critical Environment*

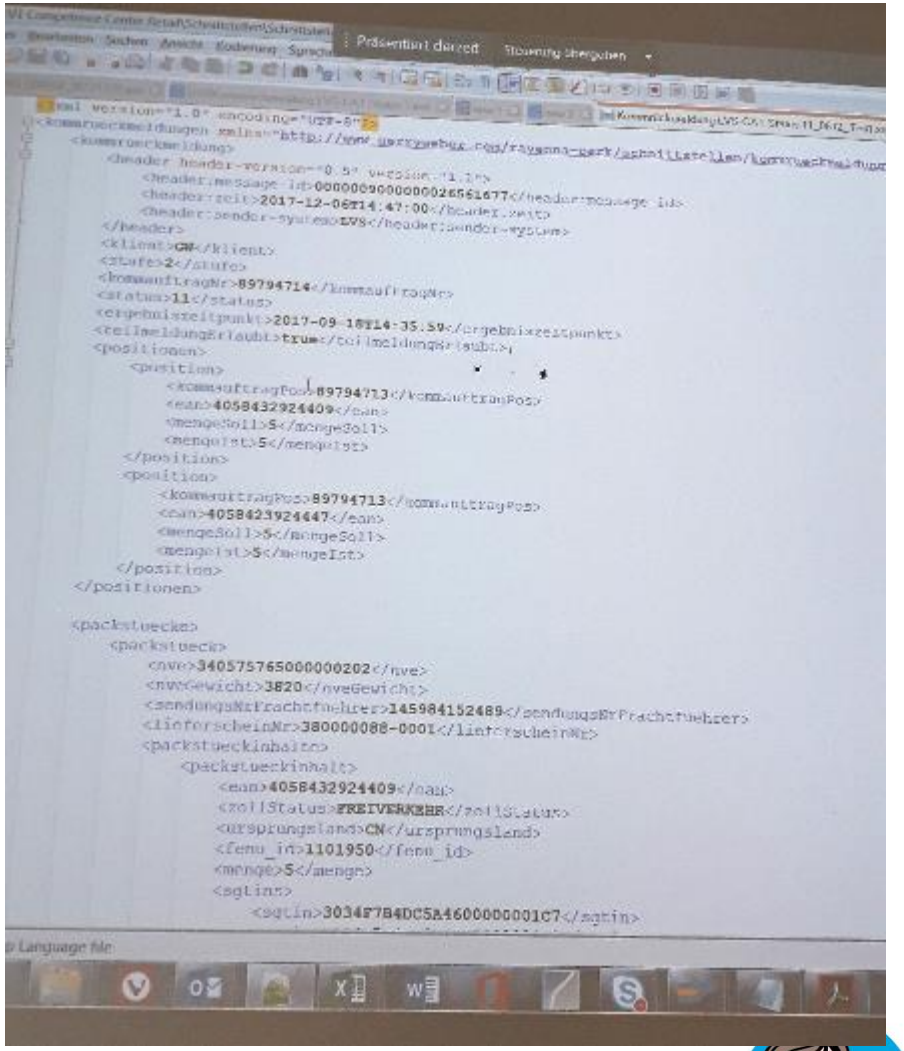
* **Essential** to the **survival** of Vanilla Corp.'s **core business**

CELIA MURIEL

Vanilla Corp. Ecosystem Monitoring

Vanilla Corp. has deployed a monitoring tool to ensure availability and overall performance of processes running in the ecosystem
It does not diagnose specific uses which cause delays or errors → the **stakeholder** of each **component** must **provide** with a **timely reply and solution** for any incident





CELIA MURIEL

Proposed Tests Prior to Releasing into Production

- **Functional testing**.
  - Components have been tested in a lab environment with low data and tag volumes, but it is necessary to test real data and high-volumes
- **Performance testing** to ensure that the components perform adequately.
- **Load testing** to ensure that the components perform under anticipated load.
- **Endurance testing** to ensure that the components perform under load over an extended period of time.
- **Disaster recovery** to ensure that the system can be recovered in the event of some kind of disaster.
- The above applies to both **server** and **client side** components

CELIA MURIEL

Goal Of Preparation Efforts To Release Into Production I

- Most leverage and benefit out of our solution and **support accomplishment of business objectives**
- Maintain **data quality**
- Estimate **how long initial loads** and **daily loads** are going to take
  - Use for planning purposes during rollout
- Estimate initial **infrastructure capacity** requirements
- Respond to the question **what to do** when the amount of **data** or **concurrency** in the solution **increases**
- **Scalability**
- **Workaround to lose network connection** in stores
- Provide with a **timely reply** and solution when **issues** arise

CELIA MURIEL

Goal Of Preparation Efforts To Release Into Production II

- **Set expectations about performance and capacity** as test results will be obtained in a particular infrastructure, which may be different on the Production system
  - Factors which influence results
    - Middleware version and configuration
    - Physical systems/ virtual machines
    - If virtual machines: hypervisor, its configuration, and the hardware underneath it
    - Concurrency on the solution: Reporting, Back Office, Cycle Counts, data loaded from Enterprise Systems and Business Applications
    - Amount of data
    - Operating System and Database version
    - Network

CELIA MURIEL

Suggested Performance Tests I

- Make **load tests** to estimate ingestion rates and times to anticipate reply to customer on deployment and set expectations
  - REST API and Web Services
  - Make several tests where the amount of data is larger in every test
- **Concurrency tests** to anticipate to customer's concerns and set expectations
  - RFID/ Mobile devices and Middleware
  - More than one call in the REST API
  - Web Services
  - All the above at the same time
- **Disaster Recovery** scenario
- **Full capacity tests** (space, CPU, I/O) to understand the solution's behaviour during peak timeframes, high season or unexpected events
  - Run heavy workloads in all components simultaneously
- **Lose network connection** at stores

CELIA MURIEL

Suggested Performance Tests II

- **Duplicate** and **null IDs**
  - Reference number
  - deliveryNumber
  - Nummer der Verpackungseinheit (NVE) or Serial Shipping Container Code (SSCC)
  - trackingNumber
  - Electronic Product Code (EPC)
  - European Article Number (EAN)
  - Advanced Ship Notice (ASN)
- **Foreign keys which don't exist in the master table**
- **Wrong data formats** and **wrong data types**
  - IDs
    - Length, particular formats as the barcodes, etc.
  - Dates, timestamps and times
    - No UTC, no 'YYYY-MM-DD'
  - Expect a number and receive characters, dates, etc.

CELIA MURIEL

Governance I

- Disaster Recovery
  - Backups, restores
- Provide with timely reply and solution for incidents observed in the Vanilla Corp. monitoring tool
- Software upgrades and migrations
  - Middleware
  - APIs
  - Back Office
  - Mobile
  - Operating System and Databases
- What to do when the amount of data/ concurrency increases

Governance II

- Procedure to report incidents
  - Customer → Vanilla Corp.
  - Internally within Vanilla Corp.
  - Incident categorization
- Regular maintenance tasks
- Tools in place for troubleshooting
- Data Quality rules
  - Duplicated keys
  - Null keys
  - Foreign keys which don’t exist in the master table
  - Wrong data formats and wrong data types

Security

- Create new users and roles
- Decommission old users and roles
- Passwords
  - Define procedures to change them
  - Format, length
  - Password vault
  - Authorization to have it
- Define procedures and how to grant access to the solution for maintenance tasks or troubleshooting

Immediate Objectives

- Agree the **scope of tests** to be performed (Performance, Load, Endurance etc.)
- Agree **when in the project lifecycle** the various testing activities should be performed.
- Determine who is **accountable and responsible** for the delivery of the testing activities.
- Understand the **likely work effort** required for such testing activities (order of magnitude 10/100/1000 days).
- Agree on follow up activities and meeting cadence.

Slide courtesy of Iain Ritchie

Recommendations and Next Steps

- **Discuss and agree on immediate objectives**
  - Include **task prioritization**
- Involve **Software Engineering/QA teams** in the discussion
  - Measure performance
- Make an **Operations Manual**
  - Details on how to operate Governance and Security
- **Discuss with the customer**
  - Data volumes are expected to be loaded initially and daily to estimate solution requirements as well as the best way to perform certain activities (e.g., initial load, full cycle count)
  - SLAs. E.g., if a system crashes and needs to be restored, how much time it should take? Would 2 days be OK? Is this time SLA feasible with current capabilities, features, support contract and hardware?
  - Identify test environment details where testing is going to be carried on

CELIA MURIEL

Recommendations and Next Steps

- Define **test metrics** which are captured and shared
  - Number of test cases
  - Number of defects
  - Number of tests executed against the ones planned
  - Execution time as per test conditions
- **Set expectations**

Comments, please