Ivan Teedor's Student Debt Solution Platform

Platform Design and Implementation

By: Sergio Carrero

Platform High Level Design

Design Considetrations

- Dynamic Scaling Performance (Scale-up Cotainers)
- Simple but Efficient
- Multiplatform Interoperability
- High Availability (Over 97%)
- Modular Design
- Extensible Implementation
- Social Network Integration
- Business Intelligence Oriented Solution
- Customizable Infrastructure
- Customizable Functionalities
- Monitoring tools
- Auditing tools
- Mobile First (Mobile/Web UX/UI)

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Stage 1: Content Management & Customer's Relationship Management

- Platform pre-requisites:
  - Platform Infrastructure Configuration Blueprint
    - Domain registration
  - Data Transport Practices and Schemas
    - Protocols
    - Certificates

Domain registration:

- godaddy.com
- domain.com

Data Transport Practices and Schemas:

- Protocols
  - http/https
- Certificates
  - SSL/TSL
    - Symantec: frees.com
    - Let's Encrypt: letsencrypt.org

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Stage 1: Content Management & Customer's Relationship Management

- Platform pre-requisites:
  - Platform Infrastructure Configuration Blueprint
    - Hosting/Cloud Based Infrastructure

Cloud-based Infrastructure:

- Reduced Total Ownership Cost.
- Highly customizable (scale-up/scale-down)
- API Performance Tools & Optimization
- Ops/BI-ready Capabilities

The proposed design takes account of a incremental, multi-stage solution. To match the platform's potential capabilities, the whole platform's architecture is built up on top of a Cloud-based infrastructure.

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Providers:

- **Google Cloud Platform**
- Azure
- AWS
- Open Shift

Cloud-based Infrastructure:

- Reduced Total Ownership Cost.
- Highly customizable (scale-up/scale-down)
- API Performance Tools & Optimization
- Ops/BI-ready Capabilities
- Environments Distribution (Containers)

The proposed design takes account of a incremental, multi-stage solution. To match the platform's potential capabilities, the whole platform's architecture is built up on top of a Cloud-based infrastructure.

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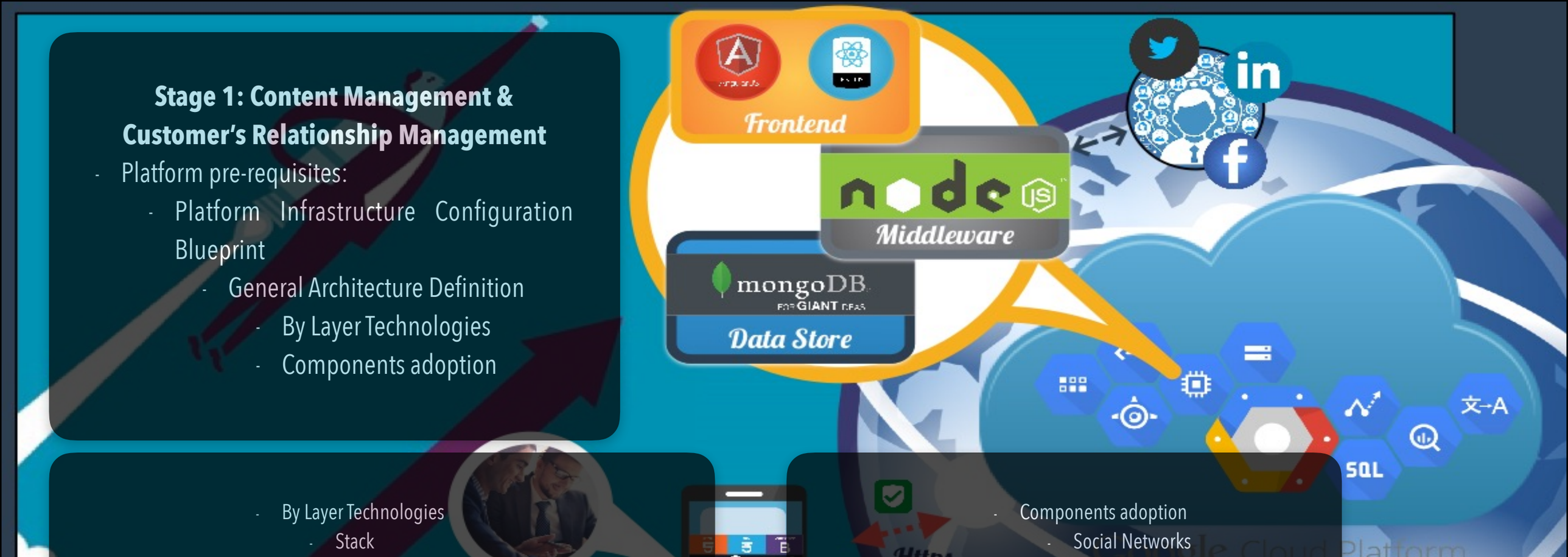
- Platform pre-requisites:
  - Platform Infrastructure Configuration Blueprint
    - General Architecture Definition
      - By Layer Technologies
      - Components adoption



- By Layer Technologies
  - Stack
    - UI/UX (Mobil-First Approach)
    - Front-end(Server Side)
    - Middleware
    - Backend
      - SOAP / **REST APIs**
      - Relational / Non-relational DB

- Components adoption
  - Social Networks
  - Mail Delivery
  - Geolocation
  - BI
    - Business Analytics
    - CRM
    - Dashboards/Reports

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      - Components adoption

- Cortana Analytics
  - Power BI
- Google Cloud
  - Machine Learning
- AWS
- QlikView
- Tableau

- By Layer Technologies
  - Stack
    - UI/UX (Mobil-First Approach)
      - **HTML 5**
      - **CSS 3**
      - **Bootstrap CSS (Twitter)**
      - **JQuery / JQueryUI**
    - Front-end(Server Side)
      - **Angular JS (by Google)** / React JS (by Facebook)
    - Middleware
      - **NodeJS**/PHP
    - Backend
      - SOAP **/ REST APIs**
        - **Service Consumer**
        - **Service Provider**
      - Relational / Non-relational DB
        - **MongoDB 3.0+**

- Components adoption
  - Social Networks
  - Mail Delivery
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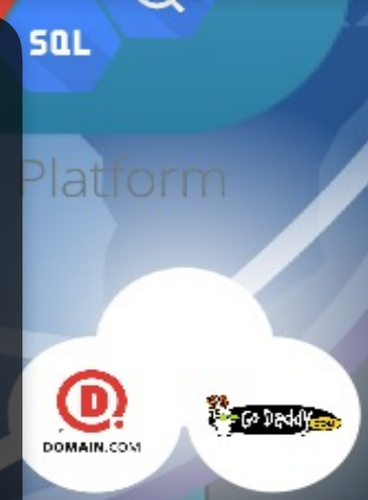

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Infrastructure Pricing

1. Tradicional Hosting Solutions
2. Cloud OD / Cloud Yearly

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Infrastructure Pricing

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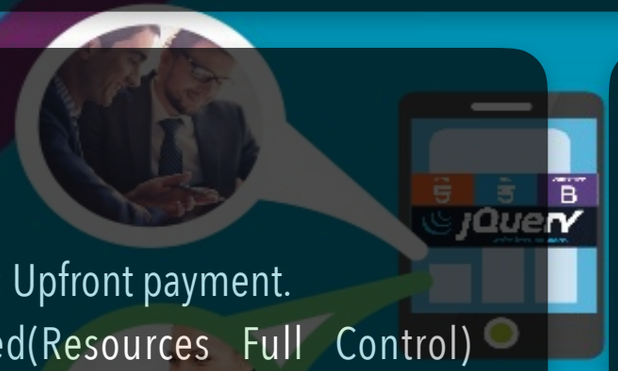
For further details:
CLOUD HOSTING VS. TRADITIONAL HOSTING



Traditional Hosting Solutions

Advantages:

- Comprehensive Invoicing Model: Upfront payment.
- Shared(Cost-efficient)/Dedicated(Resources Full Control) options.
- Includes domain and SSL Certificate
- Unlimited Resources(Depending on Selected Plan): MySQL DB, Email, Storage

Caveats:

- Low degree of customization.
- Technology-specific capabilities.
- Security breaches.
- Degraded performance on sharing scenarios.

Cloud OD / Cloud Yearly

Advantages:

- Multiple OS, Platforms, Technologies
- Higher customization/scalability capabilities
- Monitoring Tools
- Enhanced administration tools
- Better Integration Capabilities
- Pay as you go/Upfront(Usage/Commitment Discounts)

Caveats:

- Over-provision could lead to unnecessary, additional cost
- Complex Invoicing model

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Pricing

1. Tradicional Hosting Solutions
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Common Supported Technologies:

- Linux/Windows
  - PHP, Perl, Pyton
  - Apache
  - MySQL

Traditional Hosting Solutions

Provider	RAM	Storage	Monthly Rate
hostinger.com	Unlimited*	Unlimited*	$7.95
godaddy.com	Unlimited*	Unlimited*	$9.99
collabora365.com	Unlimited*	Unlimited*	$3.95

Cloud OD / Cloud Yearly

For further details: CLOUD PRICE COMPARISON FOR COMPUTE: AWS VS AZURE VS GOOGLE VS IBM

Provider	RAM/instance	Storage/ instance	Hourly Rate R/S	Yearly Aprox.
AWS	3.5GB/instance	40GB	$0.105/$0.027	$613.20
AZURE	4GB/instance	32GB SSD	$0.099/$0.025	$607.07
GCP	1.8GB/instance	40GB	$0.0496/$0.0276	$391.00
IBM	4GB/instance	25GB SSD	$0.105/$0.025	$588.00

Pricing

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Common Supported Technologies:

- Linux/Windows
  - PHP, Perl, Pyton
  - Apache
  - MySQL

- AWS provides more flexible options
- Azure matches or beats AWS OD Prices
- Google SUD reduce OD Cost/CUD saves more
- IBM has good prices on Windows OS

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Domain + SSL Pricing

Provider	SSL	Yearly Rate
domain.com	no	$14.99 depending on domain availability and suffix
godaddy.com	no	$14.99 depending on domain availability and suffix

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