



# timeware<sup>®</sup> in the cloud: Infrastructure

**timeware<sup>®</sup>**

 **NMD<sup>3</sup>**  
Hosting

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## General observations

1. Truly scalable from 25 to unlimited employees.
2. All bespoke work must be re-written. (This will be completed free of charge for customers covered by the timeware managed service).
3. Reach Cloud app accessible from T&A specialist's domain e.g.: marathon.mt-001.timeware.com.
4. Reach Cloud email appears to be sent from T&A specialist's domain e.g.: system@timeware.com.
5. Multi language and culture support (date, currency).
6. Single & multi tenants.
7. Resource groups tenants capped to x (x yet to be determined).
8. Friction free migration from on premise to Cloud.
9. Friction free upgrades.
10. Two form factor authentication using an authenticator app.

## Milestone targets

### November 2023

Personnel module

Report module

Script support

### November 2024

Absence management module

### November 2025

Time and Attendance module

## Architecture

1. Clean architecture design pattern
2. Azure cloud services (UK based)
3. Coded with C#
4. C# scripting (see 5.a.ii)
5. Blazor client technology
  - 5.1. Blazor gives of an 'app feel' whilst running within a browser
  - 5.2. WebAssembly is a binary instruction format and virtual machine that brings near-native performance to web browser applications.
6. Azure services:
  - 6.1. Azure storage
  - 6.2. SQL database (tenant data).
  - 6.3. SQL database (hangfire - message queue) 'fire and forget'.
  - 6.4. App service - Blazor web app to configure tenants by operations team.
  - 6.5. App service - Blazor web app (used by partners and end users).
  - 6.6. Sendgrid email service.
  - 6.7. App service - API.
  - 6.8. SSL wildcard certificate (enables HTTPS on sub domains e.g.: marathon.mt-001.actintime.co.uk)
  - 6.9. SignalR service - provides real-time communication between server and client. (eg: refresh
  - 6.10. Microsoft cognitive services:
    - 6.10.a. Language resource files for greater global reach.
    - 6.10.b. Form Recognizer that uses AI and OCR to quickly extract text and structure from documents.
  - 6.11. Key vault service (connection strings and passwords injected into memory at runtime - not stored in code)
  - 6.12. Azure Defender to detect threats targeting Azure services including Azure App Service, Azure SQL, and Azure Storage.



Azure Cloud Services



Azure Defender



Azure Storage



Coded with C#



Blazor Client Technology



Blazor Web Assembly



Microsoft SQL Azure



Email Service



SSL Wildcard Certification



SignalR



Microsoft Cognitive Services



Microsoft Key Vault