# Milestone 3: Practical Implementation of LowTech Gmbh Webshop in CSP Platform

Wladymir Alexander Brborich Herrera (1437876)
wladymir.brborich-herrera@stud.fra-uas.de,
Vishwaben Pareshbhai Kakadiya (1471845)
vishwaben.kakadiya@stud.fra-uas.de,
Hellyben Bhaveshkumar Shah (1476905)
hellyben.shah@stud.fra-uas.de,
Heer Rakeshkumar Vankawala (1449039)
heer.vankawala@stud.fra-uas.de, and
Priyanka Dilipbhai Vadiwala (1481466)
priyanka.vadiwala@stud.fra-uas.de

Frankfurt University of Applied Sciences
(1971-2014: Fachhochschule Frankfurt am Main)
Nibelungenplatz 1
D-60318 Frankfurt am Main

**Abstract** This report documents the implementation of LowTech GmbH's cloud-based webshop demonstration system on Microsoft Azure. The solution leverages Azure App Service for frontend hosting, Azure Kubernetes Service for middleware orchestration, Azure SQL Database for structured data storage, and Azure Blob Storage for media assets. The architecture implements high availability through Azure Load Balancer and Availability Zones, demonstrating a complete three-tier cloud application with automated scaling capabilities.

## 1 Introduction

### 1.1 Overview of the Project

Brief recap of previous milestones and progression to current implementation phase

### 1.2 Objectives of the Cloud Implementation of Webshop

## 2 Application Design

### 2.1 Architectural Overview

Detailed description of the three-tier structure with CSP service mapping

**Presentation-Tier (Frontend) - User Interface (UI)**

**Application-Tier (Backend) - Business Logic**

**Data-Tier (Database) - Databases**

### 2.2 Technology Stack

- Frontend:
- Backend:
- Database:

### 2.3 System Diagrams

## 3 Implementation Process

### 3.1 Cloud Environment Setup

Step-by-step account configuration and resource provisioning

### 3.2 Service Integration

- Azure Load Balancer configuration
- Database replication setup
- Blob storage integration patterns

### 3.3 Development Challenges

- State management in scaled environments
- Database connection pooling
- CSP-specific limitations encountered

## 4 Operational Characteristics

### 4.1 Performance Metrics

Load testing results and scalability demonstrations

### 4.2 Security Considerations

- Network security groups configuration
- Database encryption implementation
- Access control mechanisms

## 5 Critical Analysis

### 5.1 Cloud Service Evaluation

Cost-benefit analysis of selected Azure services

### 5.2 Architectural Decisions

Trade-off discussion between containerized vs serverless approaches

# 6 Repository Documentation

## 6.1 GitHub Structure

- Branching strategy
- CI/CD pipeline configuration
- Documentation standards

## 6.2 Contribution Tracking

Commit history analysis and individual contribution breakdown

# 7 Conclusion

## 7.1 Project Outcomes

Summary of achieved objectives and demo capabilities

## 7.2 Future Enhancements

Potential improvements for production readiness

# References