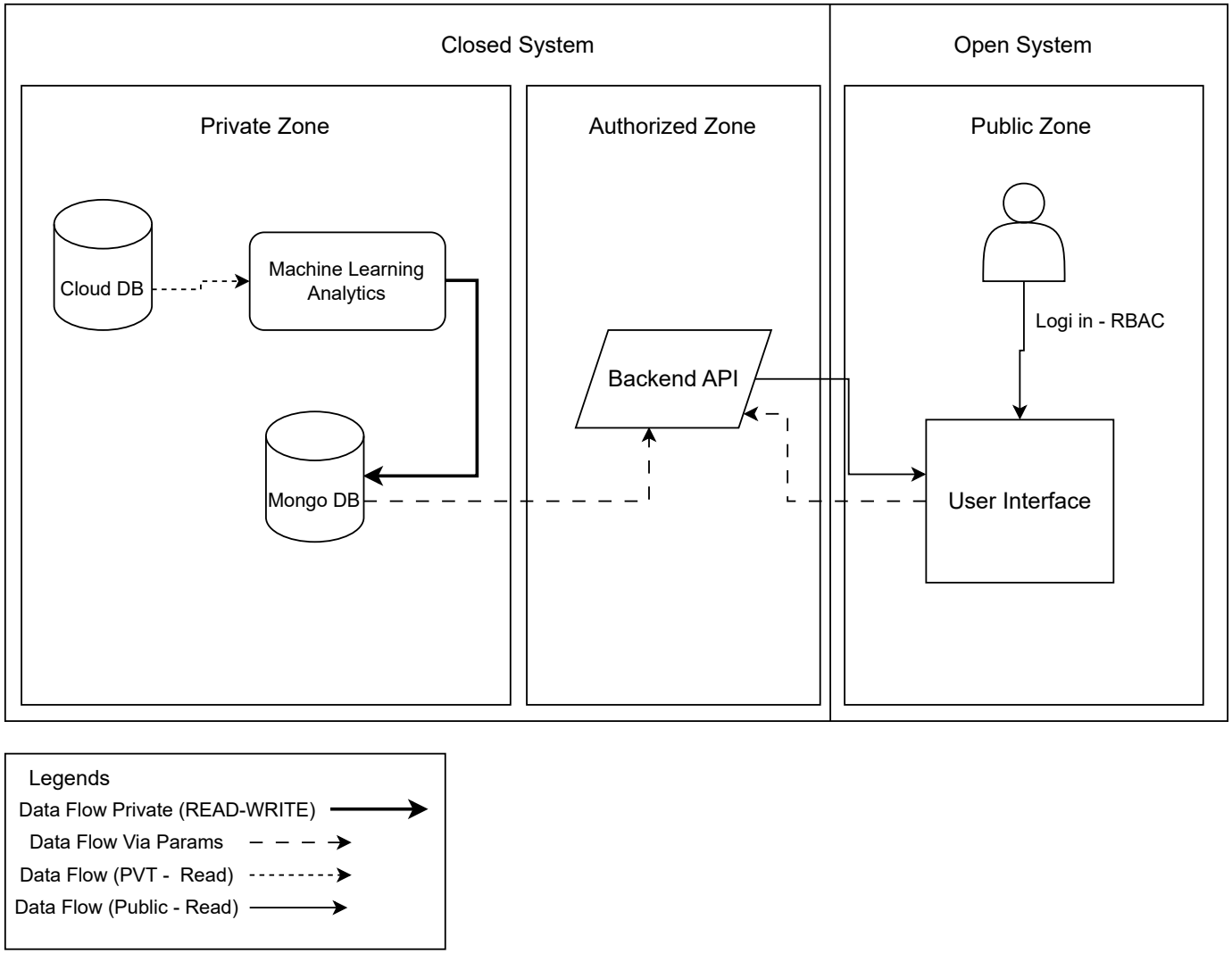End to End Architecture