



Internet Services Architectures Summary

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- Web 3.0 is an idea to share semantic information over the web. Sometimes it is refereed as *web of data*.
- The two most important Web 3.0 standards are:
 - Resource Description Framework (RDF) - for defining Knowledge Graphs in form of so-called RDF-triples in form of subject, predicate, object.
 - Web Ontology Language (OWL) - for defining ontologies.
- An example of large scale Web 3.0 project is DBPedia. The project aims to convert Wikipedia into more machine-readable form.
- Since Web 3.0 is not widely adopted, the alternative approach is to create a solution that will be able to automatically extract semantic data from raw text. The task is commonly refereed as an Entity Linking (EL).



- REST is not a standard but an architectural style. It does not define the protocol precisely.
- One of the most important feature of REST is statelessness. It is its strength (simplify a lot of things) but also a weakness.
- Interesting idea regarding the RESTful API is Hypermedia as the engine of application state (HATEOAS). The idea assumes that we should be able to browse the API similarly as we browse the standard Web page.
- One alternative to RESTful API is gRPC. Two important advantages of gRPC are:
 - Much smaller communication footprint by using Protocol Buffers and HTTP/2 features.
 - Bi-directional communication.
- Another interesting alternative is GraphQL. The advantages of GraphQL are:
 - Possibility to fetch from the server only the required resources fields. In REST we usually need to fetch entire resources.
 - When data is expressed as a graph, we can usually lower down the number of request we need to fetch all the required information.



- Backend-as-a-Service (BaaS) is cloud solution that allow us to build our applications backends with no code.
- The BaaS platforms offer us three main features:
 - Storage - the place to store our application data.
 - Authentication - the mechanism for authenticate users and to manage data access permissions.
 - Functions - the possibility to include code snippets which are triggered by different events.
- Two most popular BaaS platforms are Google Firebase and AWS Amplify.
- But there are some open source alternatives like Supabase, NHost and Parse.



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