



Hi,

Thank you very much for taking the time to move forward with our hiring process for the **Senior Back-end Role**.

At This stage we would like to learn more about your practical skills and see how you handle the real-life tasks.

Please return your answers within 72 Hrs. to [hr@sternx.de](mailto:hr@sternx.de)

And in case you need to extend the deadline, let us know via email so that we can send you another task.

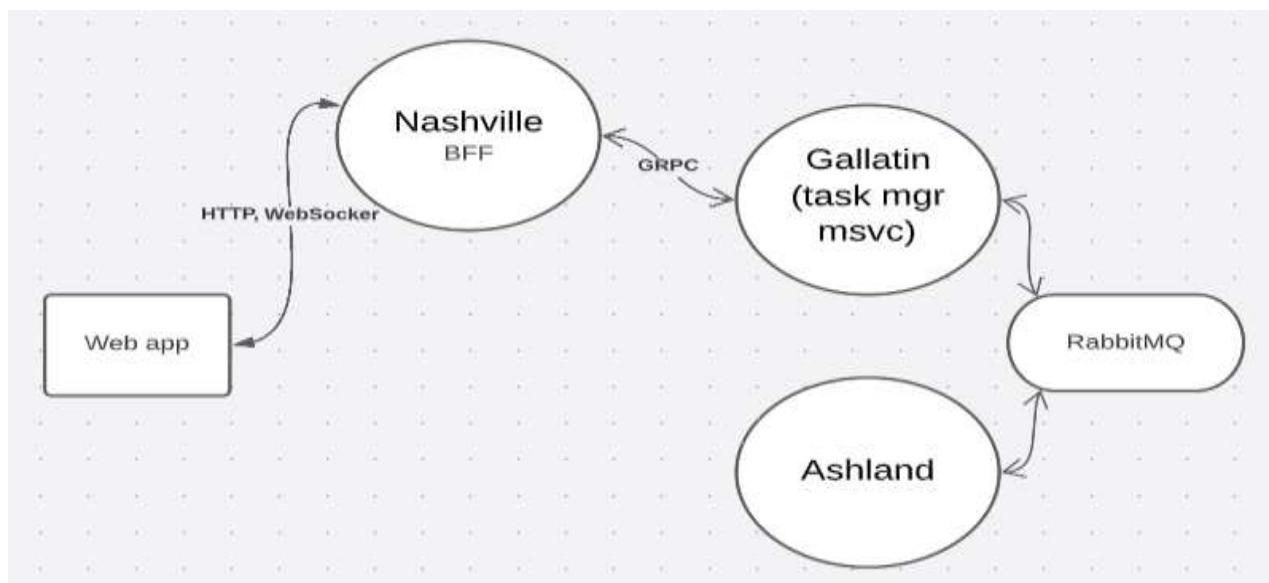
Thanks again and

Best Regards,

**STERNX TECHNOLOGY GmbH**

## Backend Challenge #1

- 1- A product owner needs to create a simple web application to manage tasks in a company. Our software architect planned a micro-service architecture, the main initial components of the system are:
- 2- a BFF for handling REST and WebSocket the codename is Nashville.
- 3- a Task Manager micro-service which handles the logic. Its codename is Gallatin.
- 4- a Logger micro-service that logs events to the console or another place in the future. Its codename is Ashland.



- The Nashville BFF would interact with the Gallatin micro-service via GRPC.
- Both Microservices (Ashland, Gallatin) are connected to a RabbitMQ message broker.
- Gallatin should emit all logical events (e.g., a new Task has been created and so on.) to the Ashland.

The product owner needs this logic at the first glance:

- Create and update a Task which has these basic attributes.
  - o id: uuid
  - o ParentId: uuid
  - o title: string
  - o description: text
  - o createdAt: date or timestamp (auto generate by ORM)
  - o updatedAt: date or timestamp (auto generate by ORM)
- Every task can have a parent task. A Root task has a null parentId.
- Paginated list of tasks (complicated pagination in the tree is not needed).
- Delete a specific task by its id.

The technical lead has planned:

- Use NodeJS, NestJS & TypeScript in all components (Both microservices and the BFF).
- DDD
- CQRS
- TDD
- PostgreSQL or MySQL/MariaDB database.
- ORM: Sequelize or TypeORM or Prisma or another one.
- RabbitMQ or another message broker.

