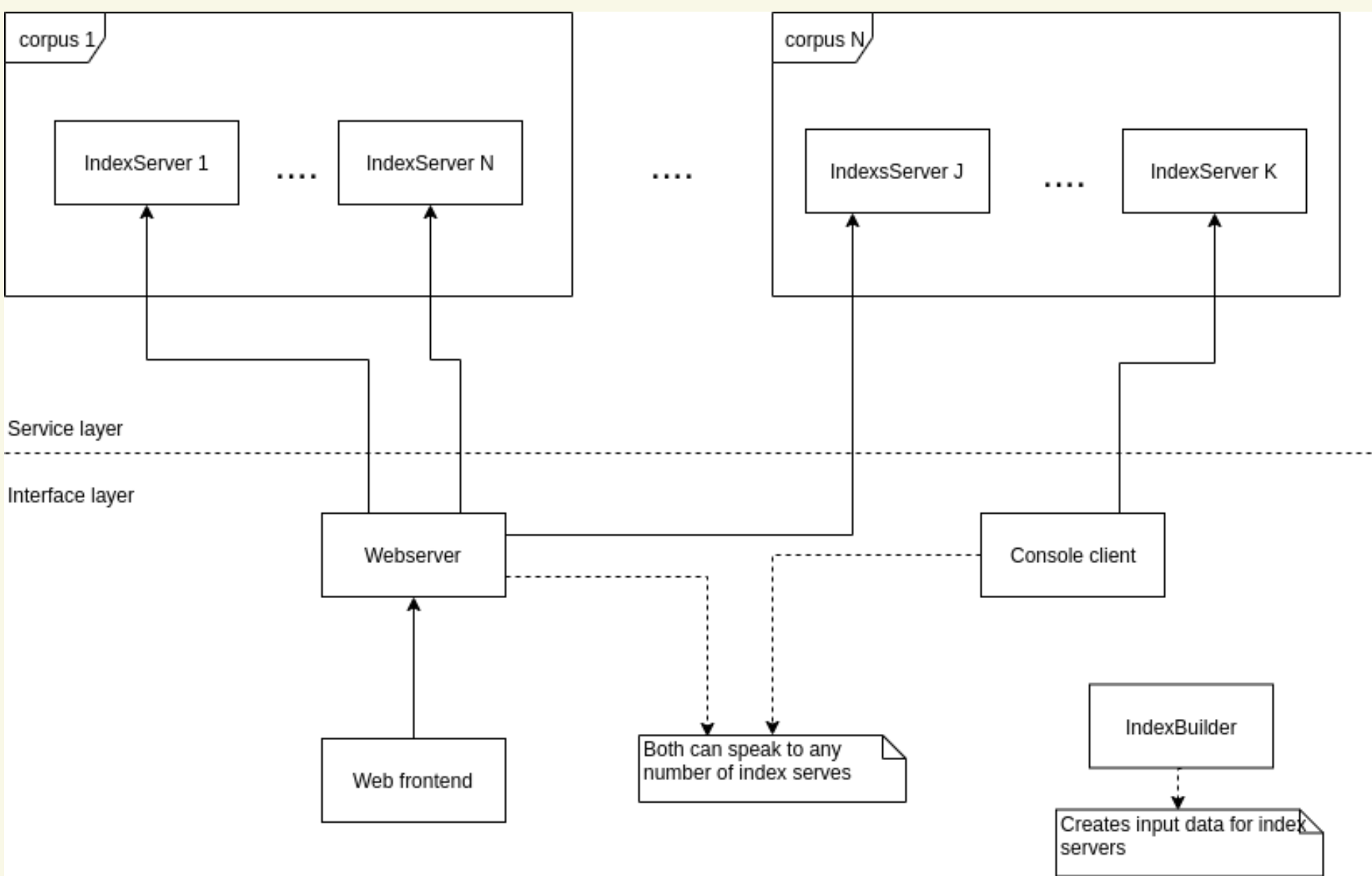# 19 Enticing – Semantic Search Engine

```
a:=nertag:person < lemma:( influence|impact | (paid < tribute) )  < b:=nertag:person ctx:sent  && a.url != b.url
```

, and left around 1,000 orphaned children. According to historian **Mark Healey**, the issues surrounding the orphans and the nearly 100,000 homeless had a profound **influence** on the shaping of social legislation enacted during **Perón**'s first term as president, two years later. [

its training quarters to Bir Zeit , a town near Ramallah . **Abd al-Qadir**'s zone of **influence** extended down to the area of Lydda , Ramleh , and the Judean Hills where **Hasan Salama** commanded 1,000 men. [109] Salama, like Abd al-Qadir

. Despite obtaining permission, the Mufti did not get to Jerusalem. **His** declining prestige cleared the way for the expansion of the **influence** of the Arab Liberation Army and of **Fawzi** Al-Qawuqji in the Jerusalem area. [136]

the captivity or death of those who defended the settlements. [172] According to **Yoav Gelber**, the fall and massacre of Kfar Etzion **influenced Ben-Gurion**'s decision to engage the Arab Legion on its way to Jerusalem, although the Haganah General Staff were

gaineda reputation as an effective politician with a lack of corruption . [39] By 1925 under **his influence** , Parliament votedto remove **Ahmad Shah Qajar** from the throne , and RezaKhan was crowned Reza Shah Pahlavi , of the Pahlavi Dynasty . Reza Shah

Overview

► Semantic search engine for KNOT.
► Searching based on the meaning of words.
► Powerful query language EQL.
► Scalable distributed system.
► Built on top of MG4J.

Components of the platform

► 5 components built from 13 modules.
  ● Webserver
  ● IndexServer
  ● IndexBuilder
  ● ConsoleClient
  ● ManagementServer
► Each of them can be replicated.
► Currently running on over 50 servers.

EQL – Enticing Query Language

► Query entities and their attributes.
► Context costraints for paragraphs or sentences.
► Global contraints for relationships between entities.
► Compiler with extensible semantic analysis toolkit.

Other features

► Smart search bar.
  ● Syntax and semantic analysis.
  ● Detailed error messages.

```
location.surname:'Smith'
```

Figure: Example of a semantic error

► Easily extensible.
  ● Different indexing libraries can be added.
► Custom configuration DSL.
► Built using modern technologies.
  ● TypeScript with React & Redux on the frontend.
  ● Kotlin with Spring on the backend.

Performance measurements

EQL Query	Average[ms]	Deviation[ms]	min[ms]	max[ms]
water	711.4	65843.12	337	1823
nertag:person	155.4	2263.76	104	421
nertag:location	177.73	24321.48	93	835
water nertag:person	503.0	35445.24	355	1259
water nertag:person ctx:sent	423.15	8891.11	321	771
nertag:person nertag:location	130.24	1919.32	96	433
nertag:person nertag:location ctx:sent	287.09	2490.72	220	463
water nertag:person nertag:location	453.82	14603.47	331	1056
water nertag:person nertag:location ctx:sent	4317.23	16767.16	4071	4828
nertag:person nertag:person	119.28	1071.40	96	403
nertag:person nertag:person ctx:sent	124.48	828.09	100	330
a:=nertag:person b:=nertag:person	117.31	699.074	97	287
a:=nertag:person b:=nertag:person ctx:sent	130.61	667.64	104	247
a:=nertag:person b:=nertag:person && a.url != b.url	126.33	801.48	98	263
a:=nertag:person b:=nertag:person ctx:sent && a.url != b.url	353.91	10034.46	250	801

Table: Early results of performance tests

► Platform is still being optimized.

Current state

► Core implementation finished.
► Ongoing testing and optimizations.
► Many possible extensions.
  ● Different indexing libraries.
  ● Autocomplete for the search bar.
  ● Native mobile client.

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