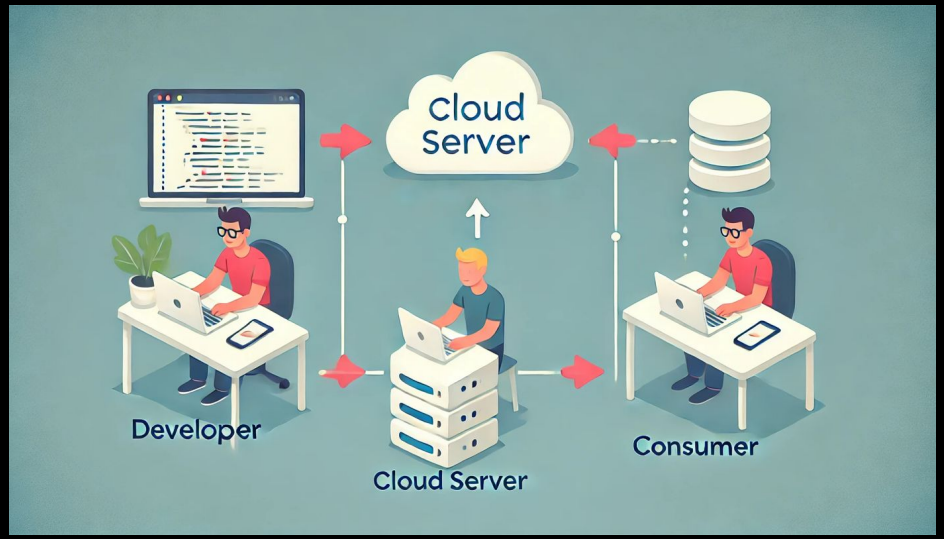
22. Deploying Apps

1. What is Deployment?
2. Cloud vs Local Deployments
3. Using Environment Variables
4. Secure Response Headers
5. Use Compressed Assets
6. Request-Response Logging
7. Using SSL/TLS Encryption
8. Using Hosting Provider

22.1 What is Deployment?



- Releasing software to users.
- Making software operational.
- Transitioning from testing to live environments.
- Using automated or manual processes.
- Delivering new features and improvements.

22.2 Cloud vs Local Deployments

Aspect	Cloud Deployment	Local Deployment (On-Premises)
Infrastructure	Hosted on third-party cloud providers' servers	Hosted on organization's own servers and hardware
Scalability	Easily scalable; resources adjusted quickly based on demand	Limited scalability; requires physical hardware upgrades
Cost	Pay-as-you-go with lower upfront costs (Operational Expenses)	High upfront investment in hardware (Capital Expenses)
Maintenance	Managed by cloud provider; less effort for the organization	Managed internally; organization handles all maintenance
Accessibility	Accessible anywhere with internet connectivity	Typically accessible only within the organization's network
Control	Less control over underlying infrastructure	Full control over hardware and software configurations

22.3 Using Environment Variables

```
const MONGO_DB_URL =
  `mongodb+srv://${process.env.MONGO_DB_USERNAME}:${process.env.MONGO_DB_PASSWORD}@kgcluster.
  ie6mb.mongodb.net/${process.env.MONGO_DB_DATABASE}`;

const PORT = process.env.PORT || 3000;
mongoose.connect(MONGO_DB_URL).then(() => {

const SEND_GRID_KEY = process.env.SEND_GRID_KEY;


const forgotEmail = {
  to: email,
  from: process.env.SENDER_EMAIL || 'contact@completecoding.in',
  subject: 'Here is your OTP to reset your Password',
```

22.3 Using Environment Variables

```
# Server
PORT=3000

# MongoDB
MONGO_DB_USERNAME=root
MONGO_DB_PASSWORD=root
MONGO_DB_DATABASE=airbnb

# Email
SEND_GRID_KEY=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
SENDER_EMAIL=contact@completecoding.in
```

.gitignore

```
1  .env
2
3  .DS_Store
```

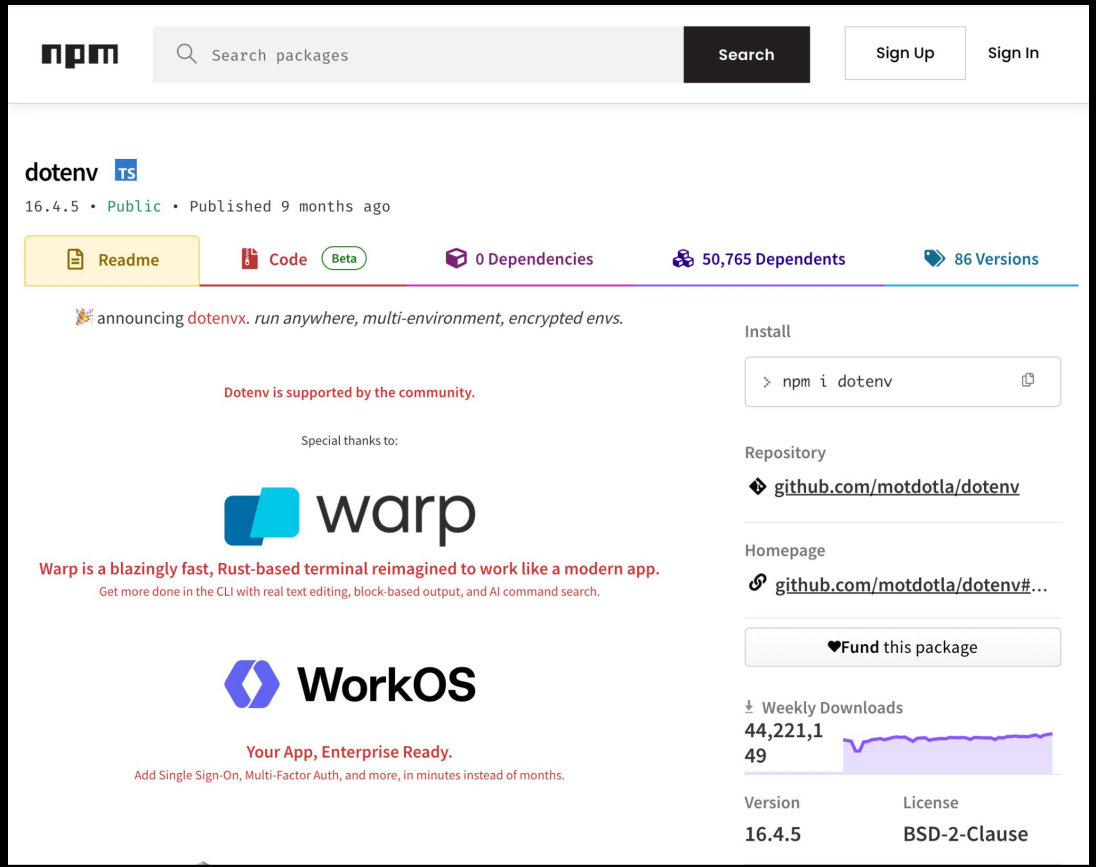
22.3 Using Environment Variables

.env.example U

5 NodeJs and ExpressJs > 18 deployment > .env.example

```
# Server Configuration
# Port number for the server to listen on (e.g. 3000)
PORT=

# MongoDB Database Configuration
# Username for MongoDB authentication
MONGO_DB_USERNAME=
# Password for MongoDB authentication
MONGO_DB_PASSWORD=
# Name of the MongoDB database
MONGO_DB_DATABASE=

# Email Service Configuration
# SendGrid API key for sending emails
# Get this from your SendGrid account dashboard
SEND_GRID_KEY=
# Email address used as the sender for all outgoing emails
# Format: example@domain.com
SENDER_EMAIL=
```

22.3 Using Environment Variables

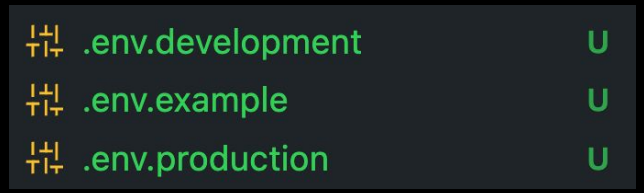



```
prashantjain@Prashants-MacBook-Pro 18 deployment % npm install dotenv

added 1 package, and audited 299 packages in 581ms

51 packages are looking for funding
  run `npm fund` for details

1 high severity vulnerability

To address all issues, run:
  npm audit fix

Run `npm audit` for details.
```

5 NodeJs and ExpressJs > 18 deployment > app.js > ...

```
1  require("dotenv").config();
2
```

22.3 Using Environment Variables



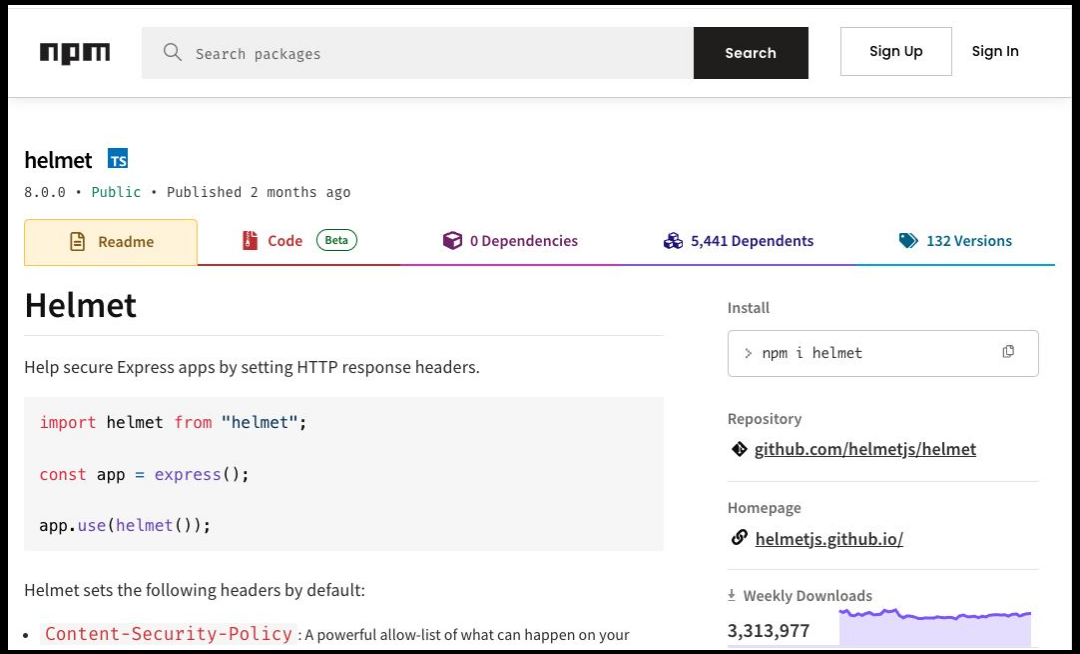

```
const environment = process.env.NODE_ENV || 'development';
require("dotenv").config({
  path: `.env.${environment}`
});
```

```
"scripts": {
  "test": "echo \"Error: no test specified\" && exit 1",
  "tailwind": "npx tailwindcss -i ./public/styles/input.css -o ./public/styles/output.css
  --watch",
  "dev": "concurrently \"npm run tailwind\" \"NODE_ENV=development nodemon app.js\"",
  "start": "NODE_ENV=production node app.js"
},
```

For Windows

```
"scripts": {
  // ... existing code ...
  "tailwind": "npx tailwindcss -i ./public/styles/input.css -o ./public/styles/output.css --watch",
  "dev": "concurrently \"npm run tailwind\" \"set NODE_ENV=development&& nodemon app.js\"",
  "start": "set NODE_ENV=production&& node app.js"
}
```

22.4 Secure Response Headers




```
prashantjain@Prashants-MacBook-Pro 18 deployment % npm install helmet

added 1 package, and audited 300 packages in 615ms

51 packages are looking for funding
  run `npm fund` for details

1 high severity vulnerability

To address all issues, run:
  npm audit fix
```

22.4 Secure Response Headers

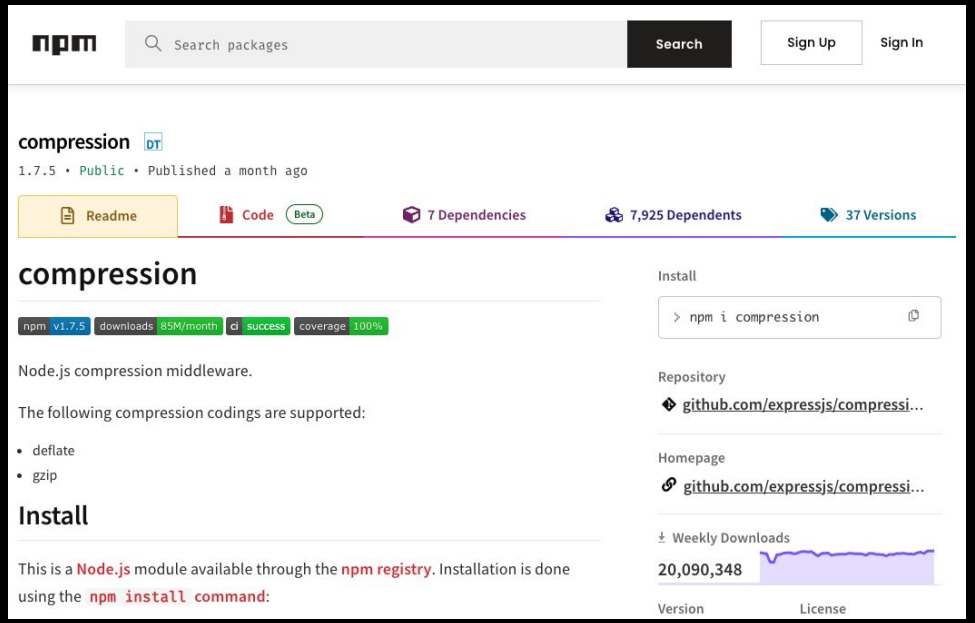
```
const helmet = require("helmet");

const app = express();
app.use(helmet());
```

▼Response Headers

Raw

Connection:	keep-alive
Content-Security-Policy:	default-src 'self';base-uri 'self';font-src 'self' https: data:;form-action 'self';frame-ancestors 'self';img-src 'self' data:;object-src 'none';script-src 'self';script-src-attr 'none';style-src 'self' https: 'unsafe-inline';upgrade-insecure-requests
Cross-Origin-Opener-Policy:	same-origin
Cross-Origin-Resource-Policy:	same-origin
Date:	Thu, 28 Nov 2024 11:30:24 GMT
Etag:	W/"2a7a-RJYQ4tZOJFrdD8vfcF7xdRYNqB8"
Keep-Alive:	timeout=5
Origin-Agent-Cluster:	?1
Referrer-Policy:	no-referrer
Strict-Transport-Security:	max-age=31536000; includeSubDomains
X-Content-Type-Options:	nosniff
X-Dns-Prefetch-Control:	off
X-Download-Options:	noopen
X-Frame-Options:	SAMEORIGIN
X-Permitted-Cross-Domain-Policies:	none
X-Xss-Protection:	0

22.5 Use Compressed Assets




```
prashantjain@Prashants-MacBook-Pro 18 deployment % npm install compression

added 3 packages, and audited 303 packages in 654ms

51 packages are looking for funding
  run `npm fund` for details

1 high severity vulnerability

To address all issues, run:
  npm audit fix

Run `npm audit` for details.
```

```
const compression = require("compression");
const app = express();
app.use(helmet());
app.use(compression());
```

22.5 Use Compressed Assets

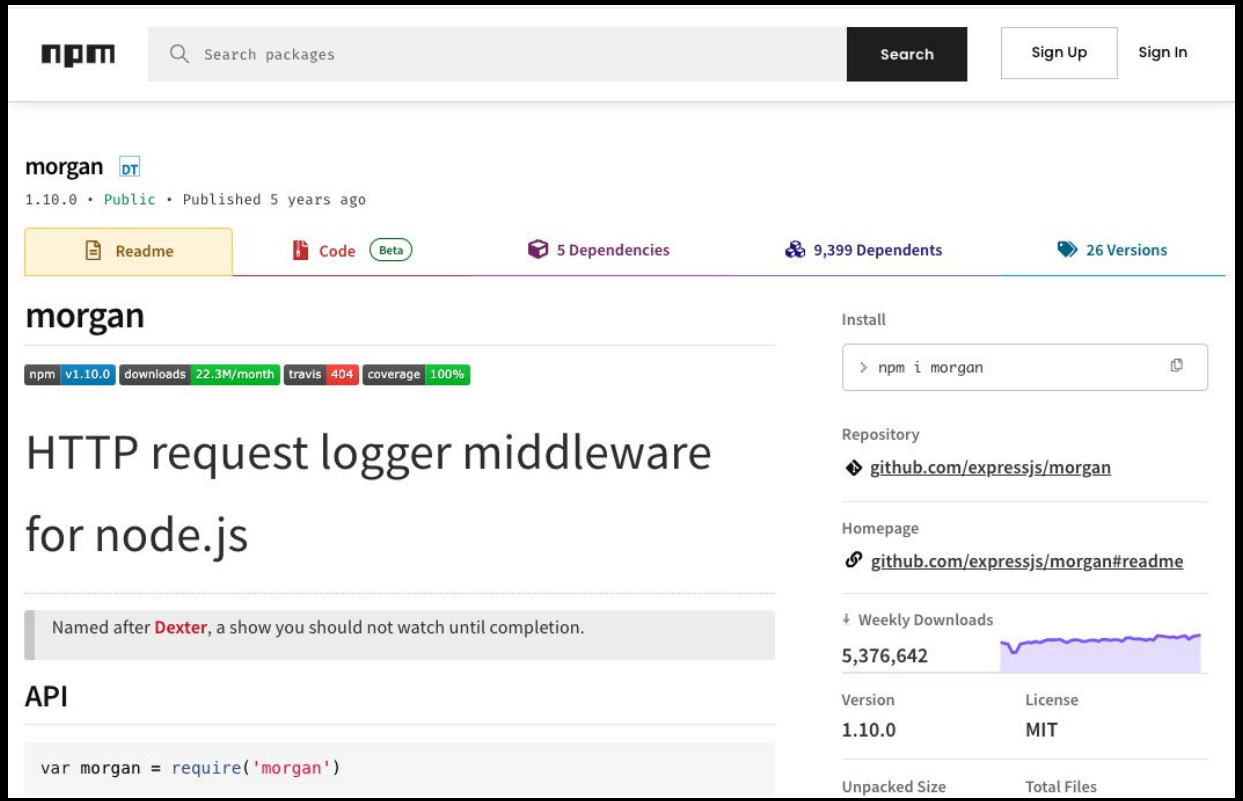
```
//app.use(compression());
```

Name	Status	Type	Ini...	Size
localhost	200	document	Ot...	11.4 kB
output.css	200	stylesheet	(inde	22.2 kB
house1.png	200	png	(inde	388 kB
house7.png	200	png	(inde	331 kB
house2.png	200	png	(inde	350 kB
2024-11-26T...	200	jpeg	(inde	1.3 MB
favicon.ico	404	text/html	Ot...	2.1 kB

```
app.use(compression());
```

Name	Status	Type	Ini...	Size
localhost	200	document	Ot...	2.3 kB
house2.png	200	png	(inde	350 kB
2024-11-26T...	200	jpeg	(inde	1.3 MB
output.css	200	stylesheet	(inde	6.0 kB
house1.png	200	png	(inde	388 kB
house7.png	200	png	(inde	331 kB

22.6 Request-Response Logging




```
prashantjain@Prashants-MacBook-Pro 18 deployment % npm install morgan

added 4 packages, and audited 307 packages in 808ms

51 packages are looking for funding
  run `npm fund` for details

1 high severity vulnerability

To address all issues, run:
  npm audit fix

Run `npm audit` for details.
```

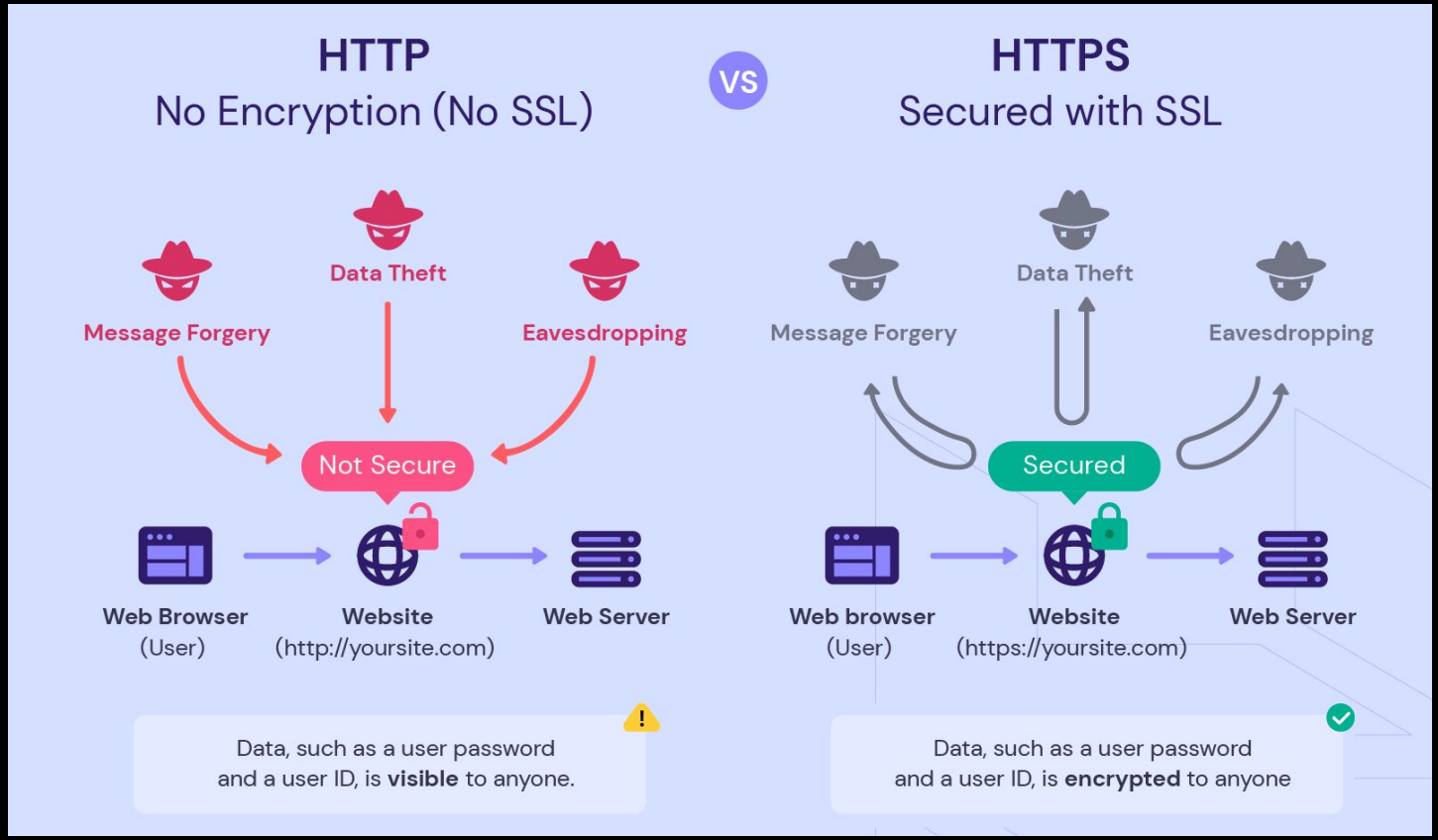
22.6 Request-Response Logging

```
const fs = require("fs");
const morgan = require("morgan");

const accessLogStream = fs.createWriteStream(path.join(__dirname, "access.log"), {
  flags: "a",
});
app.use(morgan("combined", { stream: accessLogStream }));
```

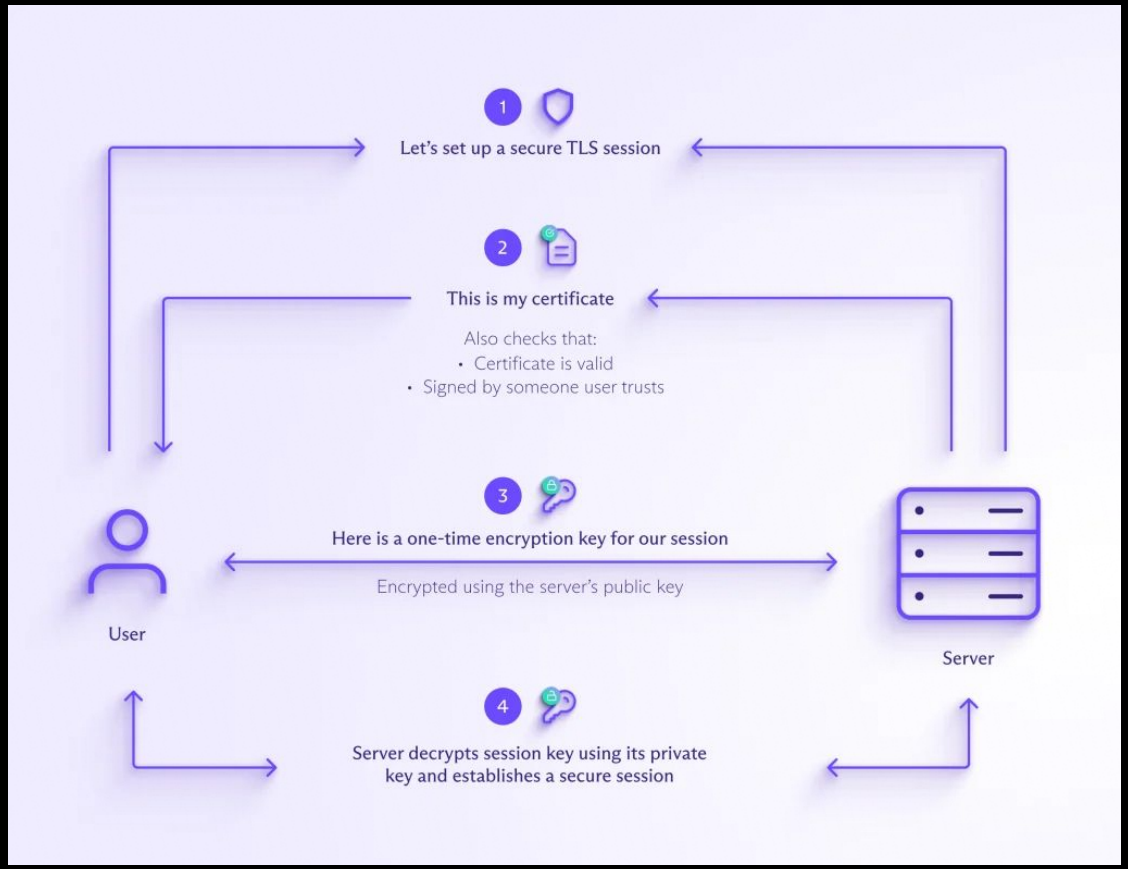
5 NodeJs and ExpressJs > 18 deployment > access.log

```
1  ::1 - - [28/Nov/2024:11:43:55 +0000] "GET / HTTP/1.1" 304 - "http://localhost:3000/homes/6739886801b45364227c9428" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36"
2  ::1 - - [28/Nov/2024:11:43:55 +0000] "GET /styles/output.css HTTP/1.1" 304 - "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36"
3  ::1 - - [28/Nov/2024:11:43:55 +0000] "GET /images/house1.png HTTP/1.1" 304 - "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36"
4  ::1 - - [28/Nov/2024:11:43:55 +0000] "GET /images/house7.png HTTP/1.1" 304 - "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36"
5  ::1 - - [28/Nov/2024:11:43:55 +0000] "GET /images/house2.png HTTP/1.1" 304 - "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36"
6  ::1 - - [28/Nov/2024:11:43:55 +0000] "GET /uploads/2024-11-26T15:17:10.226Z-1449px-Mona_Lisa,_by_Leonardo_da_Vinci,_from_C2RMF_retouched.jpg HTTP/1.1" 304 - "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36"
7  ::1 - - [28/Nov/2024:11:43:55 +0000] "GET /uploads/2024-11-26T15:17:10.226Z-1449px-Mona_Lisa,_by_Leonardo_da_Vinci,_from_C2RMF_retouched.jpg HTTP/1.1" 200 1286409 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36"
```

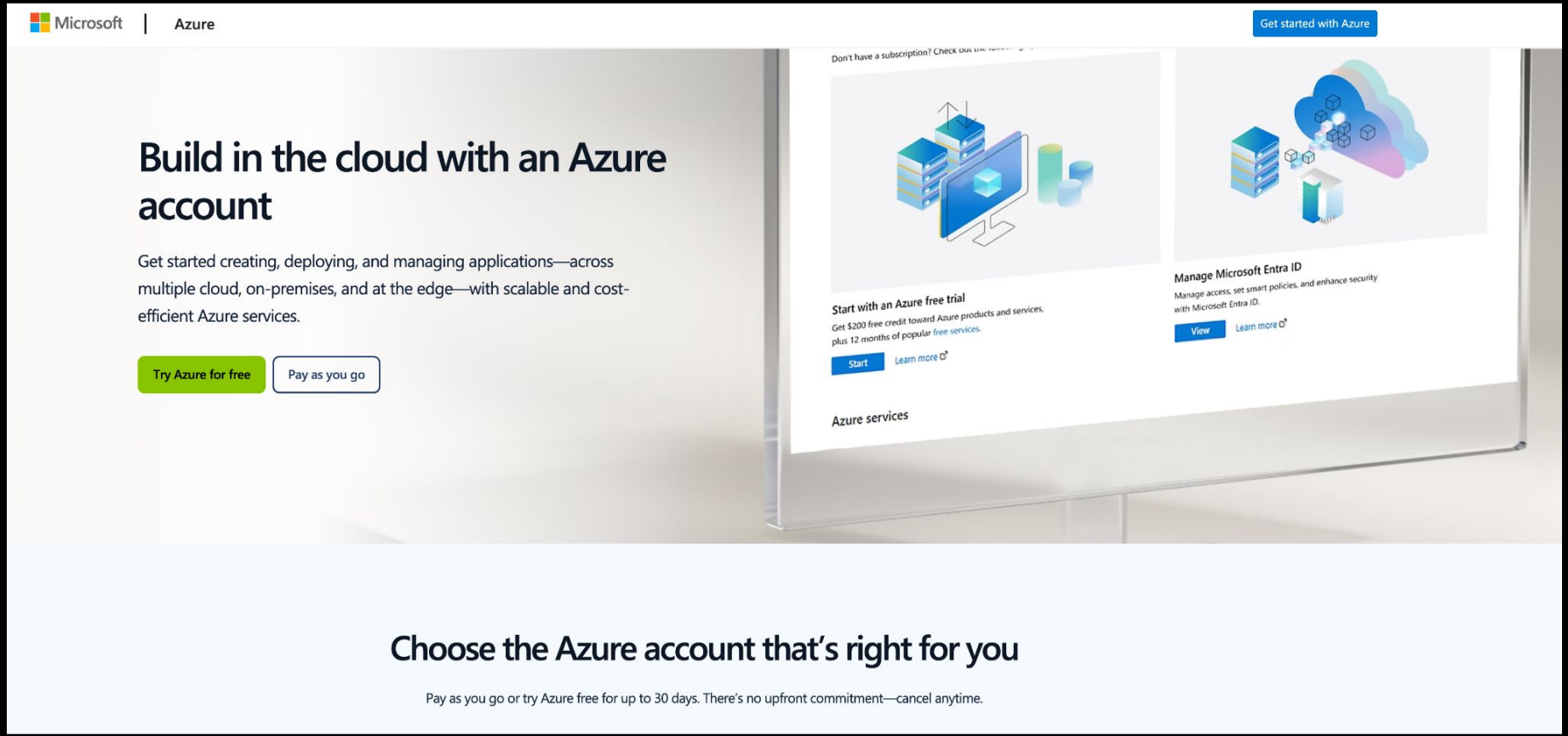
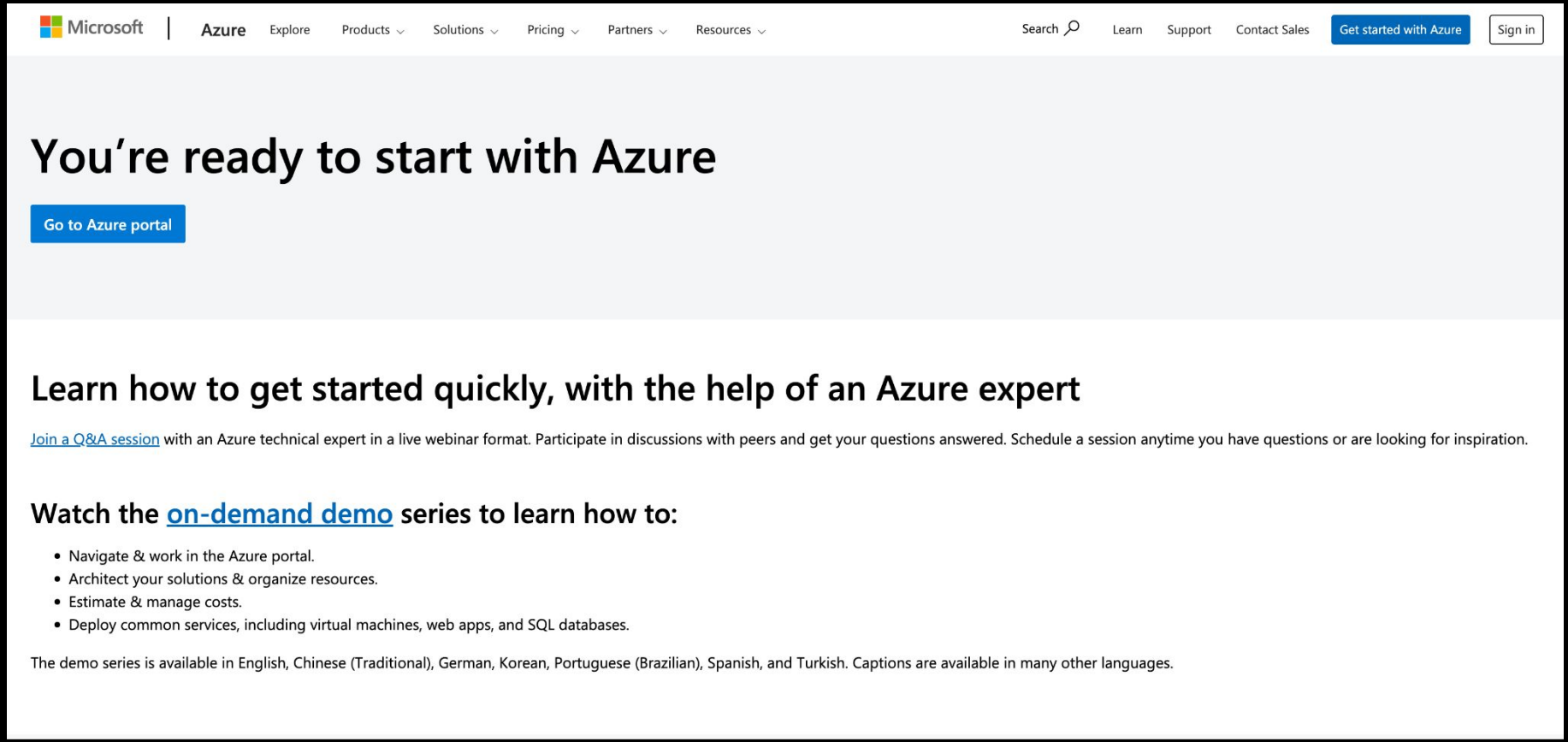
22.7 Using SSL/TLS Encryption



22.7 Using SSL/TLS Encryption



22.8 Using Hosting Provider



22.8 Using Hosting Provider