

ITI0205: Veebirakendused

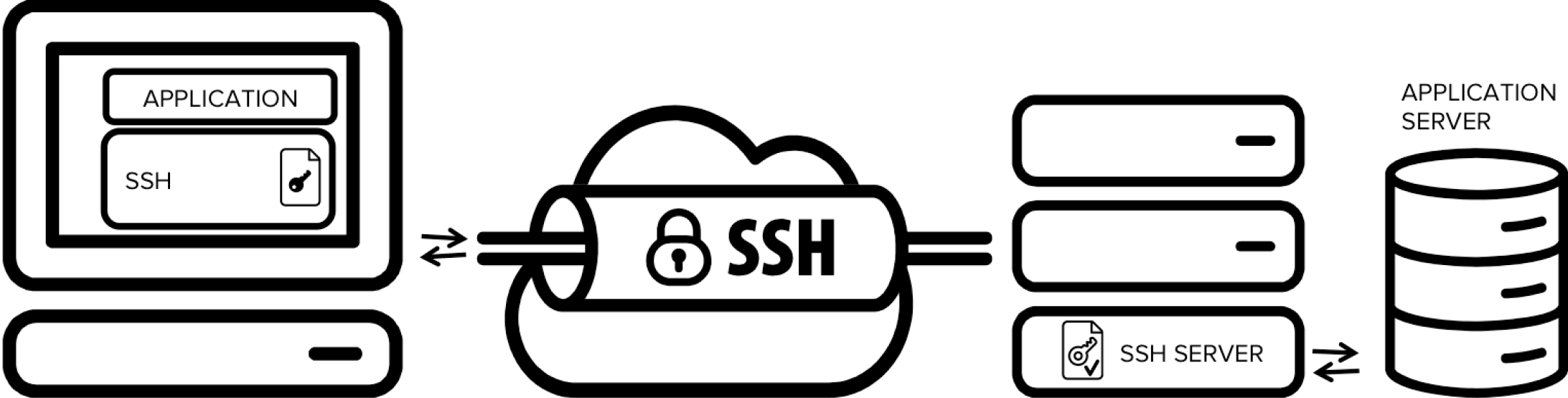
15. SSH Tunnelid. ExpressJS järk

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SSH tunneling is a method of transporting arbitrary networking data over an encrypted SSH connection.

It can be used to add encryption to legacy applications. It can also be used to implement VPNs (Virtual Private Networks) and access intranet services across firewalls.



Näide

Teeme andmebaasi kättesaadavaks lokaalsest arvutist:

```
ssh -L3307:localhost:3306 martin.verrev@turing.cs.ttu.ee -t
```

SOCKS, which stands for Socket Secure, is a network protocol that facilitates communication with servers through a firewall by routing network traffic to the actual server on behalf of a client. SOCKS is designed to route any type of traffic generated by any protocol or program.

SOCKS can be used as:

- A circumvention tool, allowing traffic to bypass Internet filtering to access content otherwise blocked, e.g., by governments, workplaces, schools, and country-specific web services.
- Providing similar functionality to a virtual private network, allowing connections to be forwarded to a server's "local" network:
Some SSH suites, such as OpenSSH, support dynamic port forwarding that allows the user to create a local SOCKS proxy. This can free the user from the limitations of connecting only to a predefined remote port and server.

Seadistamine

- `ssh minu_uni_id@turing.cs.ttu.ee -D 1337`
- Seadista enda brause kasutama SOCKS5 proxy-t `aadressil localhost:1337`
- Kuni SSH ühendus on lahti saad pöörduda serveri poole, nt `http://turing.cs.ttu.ee:3030` (eeldusel et pordil 3030 on käivitatud Node.js rakendus)
- Pordi mida kasutada leiad enda kodukataloogist `node-port` failist
- Loe ka SSH võtmepõhisest autentimisest. Nii ei pea sa serverisse sisselogimisel iga kord parooli sisestama: <https://www.digitalocean.com/community/tutorials/how-to-configure-ssh-key-based-authentication-on-a-linux-server>

4. praktikumitöö soovituslik arhitektuur

- `http://turing.cs.ttu.ee/~uni_id/prax4/` asub esirakendus mis on kasutajale brauserist kättesaadav
- `http://turing.cs.ttu.ee:minu_node_port` asub node tagarakendus, mis vastab esirakenduste päringutele

Failid - lugemine ja kirjutamine

- Vajab Node.js Filesystem moodulit: `const fs=require('fs')`
- Lugemine:
 - `fs.readFile()`
- Kirjutamine
 - `fs.writeFile()` - faili üle kirjutamine
 - `fs.appendFile()` - faili lisamine
 - `fs.open()` - universaalne faili avamine
- Kustutamine: `fs.unlink()`
- Ümber nimetamine: `fs.rename()`

Näide

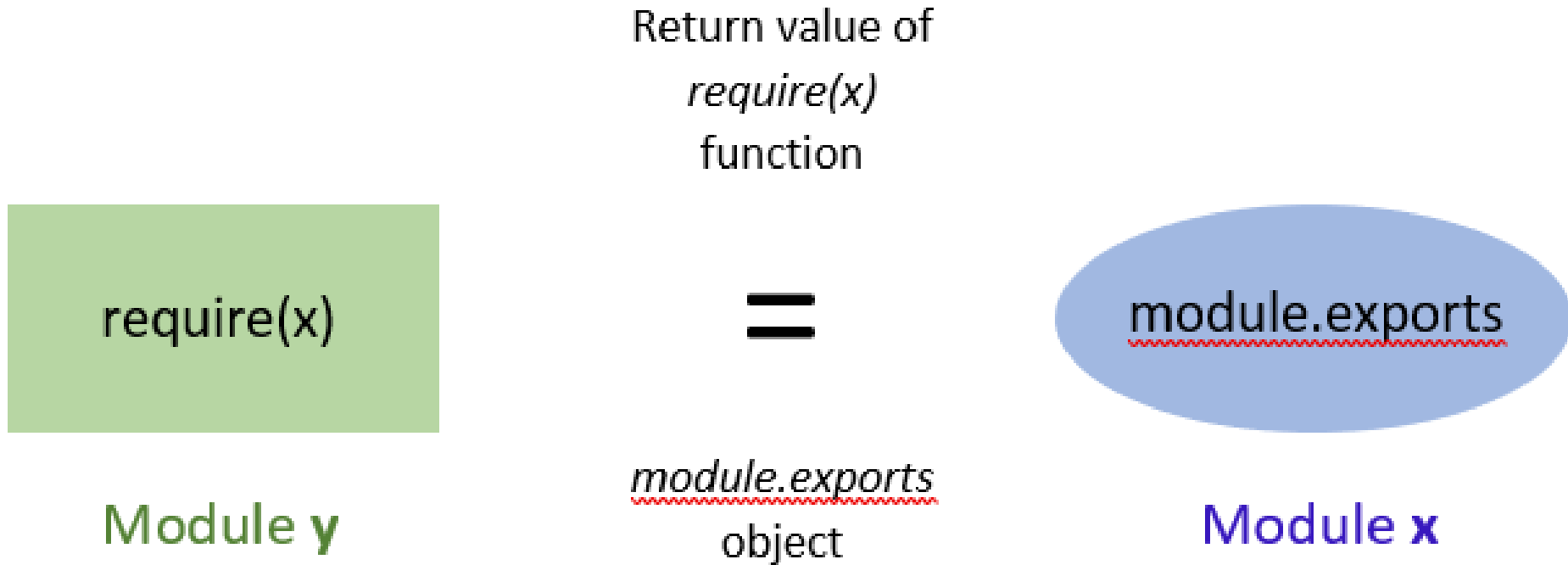
```
const fs = require("fs");

const data = "New File Contents";

fs.readFile("temp.txt", function(err, buf) {
  console.log(buf);
});

fs.writeFile("temp.txt", data, (err) => {
  if (err) console.log(err);
  console.log("Successfully Written to File.");
});
```

Koodi korduvkasutamine



Require

Require allows you to include modules in your programs. You can add built-in core Node.js modules, modules installed via `npm` and local modules.

```
npm install express
```

```
const express = require('express')
```

Using our own module

main.js:

```
const Dog = require('./dog');  
  
const dog = new Dog();  
console.log(dog.makeSound());
```

Exports

Exports keyword gives you the chance to “export” your objects and methods as a self contained module.

dog.js

```
class Dog {
  makeSound() {
    return `${this.constructor.name}: Bark Bark <3`
  }
}

// exports = Dog; // It will not work with `new Cat();`
// exports.Dog = Dog; // It will require `new Cat.Cat();` to work (yuck!)
module.exports = Dog;
```


Tänan!

Viiteid

- SSH Tunnel. <https://www.ssh.com/ssh/tunneling/>
- SOCKS Proxy Primer: What Is SOCKS5 and Why Should You Use It?
<https://securityintelligence.com/posts/socks-proxy-primer-what-is-socks5-and-why-should-you-use-it/>
- What are the benefits of SOCKS5 proxy? <https://nordvpn.com/blog/socks5-proxy/>
- Node.js | fs.open() Method: <https://www.geeksforgeeks.org/node-js-fs-open-method/>
- How to include Functions from other files in Node.js?
<https://www.geeksforgeeks.org/how-to-include-functions-from-other-files-in-node-js/>

Viiteid

Getting started with Node.js modules: require, exports, imports and beyond:

<https://adrianmejia.com/getting-started-with-node-js-modules-require-exports-imports-npm-and-beyond/>

Import vs Require in Node.js: <https://masteringjs.io/tutorials/node/import-vs-require>