The Pivotal Moment of Edge Computing

https://github.com/yomorun/yomo
The Edge

<table>
<thead>
<tr>
<th>Local</th>
<th>Access Sites</th>
<th>Regional Sites</th>
<th>National Sites</th>
<th>Global Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Premise</td>
<td>5G MEC</td>
<td>CDN Nodes, Public Cloud</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Computing Cost Efficiency**
- **Networking Latency**

- **Data Collection**
- **IoT Gateway**
- **Protocol Translation**

- **Geo-distributed Edge Cloud**

- **Already >20 years**

- **Brownfield**
- **Greenfield**
- **Cost**
- **Latency**

- **CDN Nodes**
- **Public Cloud**
- **On-Premise**
- **5G MEC**
2021 - The raising of Edge Networks
Cloudflare Announces Cloudflare Pages, Brings Next Generation Website Development Platform to Businesses and Developers

New platform delivers the fastest and most scalable websites distributed on the edge
Cloudflare Pages is the most secure and most scalable Jamstack platform to build and deploy your sites on the edge. But how is Pages so fast?

It comes down to three key reasons:

- Pages is built on one of the fastest networks in the world, putting us within 50 ms of 95% of the world’s Internet-connected population. Delivering Pages from this network is the basis of our speed.

- Cloudflare helps define and implement next generation standards, like QUIC + HTTP/3 and Early Hints, that push Pages performance to the next level.

- Pages has a killer developer experience that makes it easy to build the fastest websites on the planet.
Host directly on Shopify

Stay tuned for the upcoming Shopify-powered, global hosting solution for Hydrogen storefronts. Oxygen is the fastest way to deploy Shopify-backed commerce experiences.
implements react router
from hydrogen we get a
Fearlessly Dynamic

Edge Functions give you the benefits of static with the power of dynamic. Now you can personalize and experiment without sacrificing speed or performance.
Instant code execution

Goodbye, cold boots. Experience instant boots and 100x faster startup. Fetch your data without connection pooling, using standard web APIs and a brand new Edge runtime.
Remote collaboration requirements growth
Remote Work Could Double Permanently
Percentage of U.S. work teams/departments that plan to work remotely in five years, compared to pre-pandemic

Before COVID-19
- Fully remote: 78.8%
- Partially remote: 8.9%
- Not remote: 12.3%

Five years from now
- Fully remote: 62.5%
- Partially remote: 14.6%
- Not remote: 22.9%

Survey conducted between Oct. 21-Nov.7 of over 1,000 U.S. hiring managers
Source: Upwork
Rethinking of Collaboration Infrastructure

Figure 1: Changes in Digital Workplace Technology Use, 2019-2021 (Percentage of Respondents)
An online whiteboard for teams to ideate and brainstorm together.
Metaverse Workplace
Metaverse Workplace
Roblox Concert
Throughput v.s. Latency
Public Cloud is far away from end user
Internet is interconnected networks
Network Speed <10ms

Radius: 986km / 612.67mi, RTT in vacuum: 7ms, RTT in fiber: 10.64ms.
Network Speed <20ms

Radius: 1972km / 1225.35mi, RTT in vacuum: 13ms, RTT in fiber: 19.76ms.
Network Speed <50ms

Radius: 4931km / 3063.99mi, RTT in vacuum: 33ms, RTT in fiber: 50.16ms.
Cloud == Distributed System in Single Region
you know in the cloud we tend to think about regions and zones so ideally you get as close
Rethinking: Geo-distributed System
Technologies are evolving
TCP v.s. QUIC
QUIC & HTTP/3
WebAssembly
Internet is changing

“More than 50 percent of enterprise generated data will be created and processed outside the data center by 2022”

--- Gartner
Key metrics

- Latency sensitive
- Security first
- Processing economics
Tooling + Open-Sourcing
Developer Experiences - Serverless Streaming Function

- `zipper`
- `sfn`
- QUIC - udp stream
- FrameStream - YoMo Land
- DataFrame
- HandshakeFrame
- ... ...
- Raw Serverless Runtime
- Stream Serverless Runtime
- CLI Rx
- WASM Rx
- YCloud Handle Process
- YCloud WebAssembly
- CLI Handle Process
- WebAssembly
- RxStream
- Isolation
- Data Plane
- Control Plane
Thanks