# Intelligent cloud applications essay Cloud + AI

## About the author

Since the essay is about my own personal opinions, I would like to start from the most defining subject; me. My career so far has consisted mostly of tweaking monoliths, building small helper programs, and implementing integrations. Up until about a month ago I had very little hands-on experience with AI. The closest thing to cloud architecture has been reaching out to them through some REST Api.

## Interesting cloud opportunities

### Accessibility

For me one of the best things about cloud architecture is the low barrier of entry for users. There might be no need for any installation, just a browser can be sufficient. Having to download an installer has left many programs unacquired. In addition, the software is accessible from any device with internet access.

It’s not only users and user acquisition that benefits from lack of installation. Countless workdays have been lost because a feature worked on my computer and gives errors when tested elsewhere. Countless more because project managers, QA-engineers, or customers themselves try to install the houses of cards of software that companies are peddling. Too often a wrong version of a dll is used, or poorly replaced. Of course, cloud can’t completely solve these problems, but any help is welcome.

### Security

Cloud services are often more secure than a server on a customers site. This is because they absolutely must be secure. A few customers having their data stolen is bad press, 40000 customers data stolen is prison for the management.

Customers can benefit from the best professionals designing secure systems for them. Cloud security systems are much easier to keep up to date than have all customers update their systems. A single system is also much easier to test. I suspect that penetration testing will be a much bigger industry in the future.

### Payment structure

Many cloud services charge based on the amount of processing used. This offers a nice way for companies to have all the power in the world while only paying for the amount they use. It also aligns cloud service providers’ and customer’s goals. The more business the customer can do, the more services they will need from the cloud. For every euro you make, you give 2 cents to the cloud provider.

This payment structure is very nice on paper. In reality this makes me shiver. The model is unpredictable and makes me think of ways to cut costs by reducing testing etc.

### Edge computing

Cloud computing is inherently slower than a locally run equally powerful computer. Edge computing can be used to mitigate the downside while still retaining the cloud infrastructure.

Some downsides introduced by edge computing are the need for more nodes or the computing needs to happen on client device all together. In case edge computing would be needed to make the architecture work, I think it should be considered if cloud is the right choice for the application in the first place.

### Version control

With traditional software you can have dozens of different versions of your software being used by your customers. This can cause issues when a bug needs to be fixed in a specific older version or a long-abandoned feature needs to be updated into the latest version. Cloud allows a very simple solution to these issues. You can have all your users be using the same version running in the cloud.

Like with all things related to programming, bad design can ruin a good idea.

## AI in cloud

AI has benefited greatly from powerful cloud infrastructure. The combination of accessibility and being able to run resource intensive algorithms in the first place has made AI thrive.

### Human interface

ChatGPT has catapulted AI into mainstream culture. ChatGPT has become almost synonymous with AI in certain settings. I believe different types of interfaces between man and machine, that utilize AI, will see a lot of use in the future.

Also, from a technical standpoint it cannot be understated how significant ChatGPT, and language models in general, are and will be. It can be very helpful if you know the product you want but don’t want to spend the effort making it. For example, I was losing my mind on some Kubernetes deployment YAML formatting. Instead of carefully verifying the indentation on every line, giving it to ChatGPT gave me a well formatted YAML in 2 seconds.

I can see many companies using language models as one part of their apps. They have been a key component in virtual assistants. While they are a bit underwhelming now, I have no doubt voice recognition will be more prevalent in the future.

Elon Musk has been killing monkeys to create a better interface between computers and people. His Neuralink may someday offer the next step, but a well working language model is one part of a puzzle we have today.

### Targetted advertising

AI works well in settings where there is lots of data with which to make predictions and analytics. There exists lots of data about consumer purchase behavior. Companies like Google and Apple have tons of data about their registered users. Combining these two allows for innovation in advertising.

Currently targeted advertising feels like it’s good at advertising the things I just bought 15 minutes ago. I believe this will be one of the fastest improving aspects of AI. Some of the largest short-term profits could be made through correctly targeted ads.

### Entertainment industry

Recently there have been several strikes in Hollywood. The strikes have touched AI in addition to other things. Both writers and actors have protested against using AI to do their jobs.

Writers have taken issue with using AI to write shows. The writers got what they wanted; some critical uses of AI were banned. Funnily they were banned for 3 years. To me this sounds like companies are predicting 3 years is enough time to develop AI good enough at writing shows to throw writers into the curb.

Actors have had an issue with their likeness being used without their presence even being needed. Deepfakes could certainly be used to cut costs and not hire an actor that costs 100 million dollars per movie.

All in all, this sounds like a very dystopian future to me. People like cattle watching shows written and animated by computers. I doubt it’ll go that far though, even if it was possible.

## Thoughts

I believe we are witnessing just the first steps of AI’s mass adoption. A few years ago, AI was able to do some things but poorly. It’s still far from perfect in almost every field where it is applied to, but it’s getting better.

Today there are real-world applications where AI performs much better than humans. Processing very large amounts of data kind of adequately is something AI really shines at. Things like going through images for content violations or analyzing stock market in real-time on an individual trade level would not be feasible for humans. AI can do a near perfect job and that’s close enough for now.

I would still hesitate to trust AI to take care of matters that cannot fail even once. For example, self-driving cars are thought to be better than actual people at driving, at least by some. I could well sign this argument, but still would not be able to trust it with my life.