

# Secure Cloud-based Medical Data Exchange

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**Abstract:** For decades now, IT technology has been used in the field of medicine and healthcare. Developments in medicine led to a plethora of new diagnostic and imaging possibilities and a flood of corresponding patient data. Nowadays, healthcare is more of an inter-institutional joint effort than it ever was. In IT, the possibilities to process, store and share data have seen a revolution. Both sciences try to keep up with each other, but especially in the days of ubiquitous networking, ensuring patient data confidentiality has remained a challenge. With cloud computing, a new concept comes along that could fundamentally change the way data is shared and exchanged in healthcare: Low total cost of ownership, excellent scalability and data access without borders of institutions or geographical limitations could provide great benefits. However, the question how to ensure data privacy in such a scenario becomes even more complex. This paper proposes an architecture for a distributed data store based on public cloud storage infrastructures, protected by rights management techniques. The approach is evaluated by showing how it could be applied to the data exchange for the newborn hearing screening programme in Berlin-Brandenburg.