Lean-Technology Enabled Telemedicine Scenarios
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ABSTRACT
We have developed a layered, component-based Secure Collaborative Telemedicine Architecture (SCTA) and its applications to three representative scenarios, which are being deployed in rural West Virginia. Our approach emphasizes maximum utilization of low-cost “off-the-shelf” technologies (lean technologies) and the use of “Smartcards” as a primary means for authenticating the providers and patients.

PROJECT DESCRIPTION
Figure 1 below is a layered view of the SCTA technologies and applications in three different scenarios. The scenarios include: (1) remote monitoring of intensive care patients by an intensivist (the ICU scenario), (2) remote supervision of Mid-level care providers such as Physician Assistants by physicians at a distance (3) remote management of “home bound” patients. At the heart of this approach is the public network which is accessed through Smartcard based, encryption-enabled technologies. In the ICU scenario the system will facilitate remote access to patient vital signs, ICU patient chart as well as enable video conferencing with other health care professionals in the ICU. In the Mid-level care scenario, the supervising physician will be able to review patient charts and vitals signs from other clinics. Similarly home bound patients will benefit from televisits by home health care providers and physicians. The outermost layer in Figure 1 indicates evaluation of the system from various perspectives. For these selected scenarios, telemedicine promises significant opportunities for cost reduction while simultaneously improving access to high quality care especially in rural areas. We expect to validate that information-enabled health care delivery is both technically feasible and economically viable in the three selected scenarios.

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