Critical norm blow-up for a supercritical semilinear heat equation

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We consider the scaling critical Lebesgue norm of blow-up solutions to a semilinear heat equation (the Fujita equation) in an arbitrary smooth domain. In the Sobolev supercritical range, we show that the critical norm must be unbounded near the blow-up time. The range is optimal in view of the existence of blow-up solutions with bounded critical norm for the Sobolev critical case. This talk is based on a joint work with Hideyuki Miura (Tokyo Institute of Technology).